

Applied Art (ICAA)

- Mrs Catherine ARMINJON, Conseiller scientifique auprès du Directeur de la Caisse nationale des Monuments historiques et des Sites, Hôtel de Sully, 62 rue Saint Antoine, 75004 Paris, France. Tel.: (33 1) 44 61 20 14. Fax: (33 1) 44 61 20 36.
- Dr Elisabeth SCHMUTTERMEIER, Österr. Museum für Angewandte Kunst, Stubenring 5, 1010 Vienna, Austria. Tel.: (43 1) 711 36 234. Fax: (43 1) 711 36 222.

Archaeology & History (ICMAH)

- Mr Yannis TZEDAKIS, Director, Dept. of Antiquities, Ministry of Culture, 20 Bouboulinas St., Athens 10186, Greece. Tel.: (30 1) 8201 259, 8201 261, 8201 262. Fax: (30 1) 8201 260.
- Mrs Michèle PERISSIERE, Conservateur, Mémorial, Un Musée pour la Paix, Esplanade Eisenhower, B. P. 6261, 14066 Caen Cedex, France. Tel.: (33 2) 31 06 06 44. Fax: (33 2) 31 06 06 70.

Architecture & Museum Techniques (ICAMT)

- Mrs Ersi PHILIPPOPOULOU-MICHAIDIDOU, Director of Museum Studies, Ministry of Culture, 12 Karytsi Sq., 10186 Athens, Greece. Tel.: (30 1) 322 8931. Fax: (30 1) 643 9570.
- Mr E. J. A. V. VERSCHUUREN, Museumconsulent Noord-Brabant, Reitse Høventraat 30 A, 5042 EH Tilburg, The Netherlands. Tel.: (31 13) 632 120. Fax: (31 13) 675 912.

Audiovisual and New Technologies (AVICOM)

- Mr Marco TONON, Direttore, Museo delle Scienze, Via della Motta 16, 33170 Pordenone, Italy. Tel.: (39 434) 392 315. Fax: (39 434) 26 396.
- Mrs Claude-Nicole HOCQUARD, AVICOM, 34 quai du Louvre, 75038 Paris Cedex 01, France. Tel.: (33 1) 40 20 57 87. Fax: (33 1) 40 20 57 87.

Conservation (ICOM-CC)

- Mr David GRATTAN, Senior Conservation Scientist, Canadian Conservation Institute 1030 Innes Rd, Ottawa, ONT K1A 0M5, Canada. Tel.: (1 613) 998 37 21. Fax: (1 613) 998 47 21.
- Ms Françoise ROSIER, Institut Royal du Patrimoine artistique, 1 Parc du Cinquantenaire, 1000 Brussels, Belgium. Tel.: (33 2) 739 67 11. Fax: (33 2) 732 01 05.

Costume

- Ms Marilina PERKKO, Director, Espoo City Museum, Ylisrinne 10 A 3, 02210 Espoo, Finland. Tel.: (358 0) 869 69 99. Fax: (358 0) 869 69 79.
- Mrs Françoise TETART-VITTU, Musée de la mode et du costume, Palais Galliera, 10 av. Pierre 1er de Serbie, 75116 Paris, France. Tel.: (33 1) 47 20 85 23. Fax: (33 1) 47 23 58 37.

Documentation (CIDOC)

- Ms Jeanne HOGENBOOM, Bureau IMC, Eendrachtsweg 37, 3012 LC Rotterdam, The Netherlands. Tel.: (31 10) 411 70 70. Fax: (31 10) 411 60 36. Email: bureauimc@euronet.nl
- Ms Patricia YOUNG, Chief, Documentation Research, Canadian Heritage Information Network, Dept. of Canadian Heritage, 15 Eddy St., 4th Floor, Hull, Quebec K1A 0M5 Canada. Tel.: (1 819) 994 12 00. Fax: (1 819) 994 95 55. E-mail: pat-young@pch.gc.ca; pyong@chin.gc.ca.

Education & Cultural Action (CECA)

- Mrs Nicole GESCHE-KONING, Am Anger 3, 82544 Eglting, Germany. Tel.: (49) 81 76 72 76. Fax: (49) 81 76 72 76.
- Ms Dorothee DENNERT, Stiftung Haus der Geschichte der BRD, Adenauerallee 250, 53113 Bonn, Germany. Tel.: (49 228) 916 51 13. Fax: (49 228) 916 53 00, 916 53 02.

Egyptology (CIPEG)

- Ms Rita E. FREED, Curator, Dept. of Ancient Egyptian, Nubian and Near Eastern Art, Museum of Fine Arts, 465 Huntington Ave., Boston MA 02115, U.S.A. Tel.: (1 617) 267 93 00. Fax: (1 617) 267 02 80.
- Dr Regine SCHULZ, Scientific Collaborator, Roemer-und-Pelizaeus Museum, Am Steine 1-2, 31134 Hildesheim, Germany. Tel.: (49 51 21) 936 915. Fax: (49 51 21) 35 283.

Ethnography (ICME)

- Mr Per KÄKS, Museum Director, Folkens Museum Etnografiska, P.O. Box 27140, 10252 Stockholm, Sweden. Tel.: (46 8) 666 50 00. Fax: (46 8) 666 50 70.
- Mr Per B. REKDAL, Director, Ethnographic Museum, University of Oslo, Frederiksgate 2, 0164 Oslo, Norway. Tel.: (47) 2285 99 61. Fax: (47) 2285 99 60. Email: p.b.rekda@jima.uio.no.

Exhibition Exchange (ICEE)

- Ms Sandra LORIMER, Director, Exhibition & Design, Canadian Museum of Civilization, 100 Laurier St., P.O. Box 3100, Station B, Hull, Quebec J8X 4H2, Canada. Tel.: (1 819) 776 83 15. Fax: (1 819) 776 82 09. Email: sandy.lorimer@cmcc.muse.digital.ca.
- Ms Shirley Reiff HOWARTH, The Humanities Exchange, P.O. Box 1608, Largo FL 34649, U.S.A. Tel.: (1 813) 581 73 28. Fax: (1 813) 585 63 98.

Fine Art (ICFA)

- Prof. Dr Hendrik Willem VAN OS, Director General, Rijksmuseum, Postbus 74888, 1070 DN Amsterdam, The Netherlands. Tel.: (31 20) 673 21 21. Fax: (31 20) 679 81 46.
- Mr Jacques KUHNMUNCH, Conservateur en chef, Musée national du Château de Compiègne, B.P. 549, 60205 Compiègne Cedex, France. Tel.: (33 3) 44 38 47 00. Fax: (33 3) 44 38 47 01.

Glass

- Mr J. Reino LIEFKES, Deputy Curator (Ceramic & Glass) Victoria & Albert Museum, Cromwell Rd., South Kensington, London SW7 2RL, U.K. Tel.: (44 171) 938 85 57. Fax: (44 181) 938 85 64.
- Dr Jutta Annette BRUHN, Curator, Corning Museum of Glass, One Museum Way, Corning NY 14830-2253 U.S.A. Tel.: (1 607) 975 82 57. Fax: (1 607) 937 33 52.

Literary Museums (ICLM)

- Mr Janus ODROWAZ-PIENAZAK, Director, Literary Museum Adam Mickiewicz, Rynek Starego Miasta 20, 00272 Warsaw, Poland. Tel.: (48 22) 317 692. Fax: (48 22) 317 692.
- Dr Wolfgang BARTHEL, Wissenschaftlicher Mitarbeiter, Kleist-Gedenk-und-Forschungsstätte, Faberstrasse 7, 15230 Frankfurt (Oder), Germany. Tel.: (49 335) 231 85. Fax: (49 335) 231 85.

Management (INTERCOM)

- Mrs Marta DE LA TORRE, Program Director-Training, The Getty Conservation Institute, 1200 Getty Center Drive, Los Angeles CA 90049-1694 U.S.A. Tel.: (1 310) 440 73 25. Fax: (1 310) 440 77 02. Email: mtorre@getty.edu.
- Mr Arnout WEEDA, Director, Rijksmuseum Zuiderzeemuseum, Wierdijk 18 1601 LA Enkhuizen, The Netherlands. Tel.: (31 2280) 102 10. Fax: (31 2280) 102 30.

Marketing & Public Relations (MPR)

- Mr Roger SMITH, Manager of Public Programs & Marketing, New Zealand Maritime Museum, P.O. Box 3141, Auckland, New Zealand. Tel.: (64 9) 358 10 19. Fax: (64 9) 377 60 00. Email: roger@waimuse.org.nz.
- Ms Barbara HOPE, Head of Education & Public Programmes, National Museums and Galleries on Meseyside, P.O. Box 33, 127 Dale St., Liverpool L69 3LA, U.K. Tel.: (44 151) 478 46 11. Fax: (44 151) 478 47 77. Email: bhope@nmgepp1.demon.co.uk.

Modern Art (CIMAM)

- Dr Rudolf Herman FUCHS, Director, Stedelijk Museum, Paulus Potterstraat 13, 1071 CX Amsterdam, The Netherlands. Tel.: (31 20) 573 29 11. Fax: (31 20) 675 27 16.
- Mr Frits Jan Maria BLESS, Director, Gemeentelijk Van Reekum Museum, Churchillplein 2, 7314 BZ Apeldoorn, The Netherlands. Tel.: (31 55) 219 155. Fax: (31 55) 225 456.

Museology (ICOFORM)

- Dr Martin R. SCHÄRER, Directeur, Alimentarium, Musée de l'alimentation, B.P. 13, 1800 Vevey, Switzerland. Tel.: (41 21) 924 41 11. Fax: (41 21) 924 45 63.
- Mrs Mathilde BELLAIGUE, Laboratoire de Recherche des Musées de France, 6 rue des Pyramides, 75041 Paris Cedex 01, France. Tel.: (33 1) 40 20 56 52. Fax: (33 1) 47 03 32 46.

Musical Instruments (CIMCIM)

- Prof. Sumi GUNJI, Pr. Emeritus, Kunitachi College of Music, 7-19-42 Sunagawa-cho, Tachikawa-shi, Tokyo 190, Japan. Fax: (81 425) 36 60 19. Fax: (81 425) 36 60 19
- Miss Margaret BIRLEY, Asst. Keeper of Musical Instruments, The Horniman Museum, London Rd, London SE23 3PQ, U.K. Tel.: (44 181) 699 18 72 ext. 133. Fax: (44 181) 291 55 06. Email: birley@horniman.demon.co.uk.

Natural History (NATHIST)

- Prof. Andreas STEIGEN, University of Bergen, Centre for Studies of Environment & Resources, Hoyteknologisenteret, 5020 Bergen, Norway. Tel.: (47 55) 544 242. Fax: (47 55) 324 801. Email: andreas.steigen@smr.uib.no.
- Dr Anne Marie SLEZEK, Direction, Museum national d'Histoire naturelle, 57 rue Cuvier, 75005 Paris, France. Tel.: (33 1) 40 79 32 26. Fax: (33 1) 40 79 34 84.

Numismatics (ICOMON)

- Dr Mando OECONOMIDES, Director, Numismatic Museum, Tositsa I, 10682 Athens, Greece. Tel.: (30 1) 821 77 69. Fax: (30 1) 821 69 26.
- Ms Christiane LOGIE, Conservateur en Chef, Musée numismatique et historique, Banque nationale de Belgique, 5 bd de Berlaimont, 1000 Brussels, Belgium. Tel.: (32 2) 221 20 42. Fax: (32 2) 221 31 60.

Regional Museums (ICR)

- Drs Margriet LESTRADEN, Lestraden Museum Consultancy, Willemstraat 51 A, 2514 HK Den Haag, The Netherlands. Tel. & Fax: (31 70) 361 53 35.
- Mr Roy HOIBO, Curator, Ryfylkemuseet, 4230 Sand, Norway. Tel.: (52) 797 377. Fax: (52) 797 889.

Science & Technology (CIMUSET)

- Dr J. Patrick GREENE OBE, Director, Museum of Science & Industry, Liverpool Rd, Castlefield, Manchester M3 4FP, U.K. Tel.: (44 161) 832 22 44. Fax: (44 161) 833 21 84. Email: greene@mussci.smart.co.uk.
- Dr Michael DAUSKARDT, Direktor, Westfälisches Freilichtmuseum Hagen, Mackingerbach, 58091 Hagen, Germany. Tel.: (49 2331) 780 710. Fax: (49 2331) 780 720.

Security (ICMS)

- Dr Phil Gunther DEMBSKI, Museum Security Adviser, Kunsthistorisches Museum, Burgring 5, 1010 Vienna, Austria. Tel.: (43 1) 521 77 380. Fax: (43 1) 521 77 501. E-mail: khm@pandora.pan.at.
- Mr David LISTON, Protection Training/Outreach Officer, Office of Protection Services, Smithsonian Institution, MRC 924, 955 L'Enfant Plaza, Suite P105, Washington DC 20560 U.S.A. Tel.: (1 202) 287 25 85. Fax: (1 202) 287 25 89. Email: ops1.listond@ic.si.edu.

Training of Personnel (ICTOP)

- Prof Martin SEGGER, Director, Maltwood Art Museum and Gallery, University of Victoria, P.O. Box 1700, Victoria B.C. V8W 2Y2, Canada. Tel.: (1 604) 721 82 95. Fax: (1 604) 721 89 97. Email: msegger1@sol.uvic.ca.
- Mr Christopher NEVBERRY, Director, Museum Training Institute, First Floor, Glyde House, Glydegate, Bradford BD5 0UP, U.K. Tel.: (44 1274) 391 956. Fax: (44 1274) 394 890.

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Préface

Saroj Ghose
Président de l'ICOM

Je me réjouis de cette seconde parution des *Cahiers d'étude*, réalisée par le Comité international de l'ICOM pour l'éducation et l'action culturelle. Je tiens à remercier tout particulièrement sa Présidente, Nicole Gesché-Koning, pour son travail de coordination auprès des nombreux auteurs. Cette nouvelle série, si importante pour la promotion du travail scientifique effectué par nos Comités internationaux, me semble à présent bien engagée et promise à un bel avenir.

Foreword

Saroj Ghose
President of ICOM

I am delighted with this second issue of the *Studies Series*, which has been put together by the ICOM International Committee for Education and Cultural Action. I would especially like to thank Nicole Gesché-Koning, Chairperson of the Committee, for all her work co-ordinating with the many different authors. This new publication series, which is so important for promoting the scientific work carried out by our International Committees, seems to me to be well on the way to securing a promising future.

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Editorial – Le rôle éducatif des musées à l'aube du XXI^e siècle

Nicole Gesché-Koning
Présidente du
Comité pour l'éducation
et l'action culturelle

Le Comité pour l'éducation et l'action culturelle est heureux de vous présenter le deuxième des *Cahiers d'étude* de l'ICOM, faisant suite au numéro consacré aux enjeux actuels de la conservation-restauration¹. En effet, la diffusion des messages livrés par les objets auprès du public intervient comme la seconde mission du musée. Déjà en 1922, Jean Capart, fondateur de l'éducation muséale belge, devait au retour d'un voyage aux Etats-Unis, reconnaître la *haute mission d'enseignement* du musée et jeter les bases de la muséologie moderne en définissant sa double fonction : scientifique et tournée vers l'intérieur d'une part, et de communication vers l'extérieur ainsi que d'éducation du public² d'autre part.

Cette idée d'ouverture du musée a depuis lors fait son chemin, et la mission d'éducation du musée³, aux côtés de celles d'étude et de conservation qui en font sa spécificité, n'est plus à débattre. Cette valeur éducative lui a été reconnue dès la création de l'ICOM en 1946. Un Comité international pour l'éducation a vu le jour en 1953 ; il devait dix ans plus tard prendre son nom actuel de CECA (Comité international pour l'éducation et l'action culturelle), et constituer l'un des cinq premiers Comités internationaux de l'ICOM. Au fil des ans, le CECA a compté avec le soutien de l'ICOM pour le développement de ses activités⁴. Il constitue aujourd'hui l'un des comités internationaux comptant le plus de membres. Leur nombre a plus que triplé en vingt ans, et dépasse à présent le millier d'adhérents, dont quelques 700 votants.

L'événement majeur de la vie de notre comité est sans nul doute la Conférence internationale annuelle. Parmi les conférences qui ont fait l'objet de publications, signalons celles de Svendborg, Danemark (1981), *L'exposition comme moyen d'éducation* ; de Düsseldorf, Allemagne (1984), *Les musées et le monde du travail* ; de

Barcelone, Espagne (1985), *Le personnel éducatif et la recherche* ; de Nauplie et Athènes, Grèce (1988), *Etablir, développer et maintenir les services éducatifs des musées* ; de Jérusalem, Israël (1991), *Le musée et les besoins du public* ; de Delhi et Calcutta, Inde (1993), *Intégration des musées dans une société multiculturelle* ; de Cuenca, Equateur (1994), *Musées, éducation et patrimoine naturel, social et culturel* (sous presse) ; et enfin celle de Stavanger (1995), *Musées et communautés* (sous presse).

Le CECA a toujours eu à cœur de développer une politique internationale de publications, qu'il s'agisse de son bulletin d'information (*Market of Ideas*, devenu la *CECA Newsletter*), ou de sa revue *ICOM Education*. Le Bureau du CECA s'est donné pour tâche au cours de cette nouvelle période triennale de publier, sous ma direction ainsi que celle de Graham Carter (Royaume-Uni), un *Manuel international sur l'éducation muséale*.

Notre travail éducatif ne se limite plus aujourd'hui à la simple visite scolaire ou à un atelier pour enfants dans une cave perdue du musée. Il dépasse souvent le cadre même du musée. Aussi ces *Cahiers d'étude* ouvrent-ils sur le rôle de l'éducation muséale au sens large. Quel est-il aujourd'hui, dix ans après l'état d'urgence décrété lors de la IX^e Conférence de l'ICOM à Buenos Aires⁵? Les articles présentés dans ce numéro ont été choisis en fonction de l'incroyable diversité et richesse qu'offre notre profession, ainsi que de ses nombreux champs d'application : un premier volet traite des différents domaines de recherche ou de réflexion qui sous-tendent le travail quotidien de l'éducateur, à savoir la nécessité d'une formation adéquate à la sauvegarde de notre patrimoine, l'évaluation, la motivation du visiteur et l'étude de son comportement, la présentation éducative et attrayante des collections, la place et la raison d'être des ateliers au sein du musée et l'impact des théories constructivistes sur l'éducation muséale.

A l'ère de l'informatique et de l'image, l'éducateur de musée se doit de rester vigilant, critique et conscient de sa mission. Gardons à l'esprit la spécificité même du musée et la chance que nous avons de pouvoir y trouver ce qu'aucun multimédia ou technologie sophistiquée ne peuvent offrir : le contact direct et irremplaçable avec l'objet, l'émerveillement qu'il suscite. Le rôle de support incontestable offert par les nouvelles technologies ne

saurait être dédaigné, et l'éducation muséale est loin d'en avoir exploré tous les secrets⁶.

Un deuxième volet aborde le côté « tangible » de notre travail, et présente quelques études plus spécifiques portant sur les musées et les communautés, les musées des enfants, les musées et le public scolaire, le musée hors-les-murs, les musées et les minorités, l'éducation muséale dans un musée des sciences ou d'histoire naturelle.

Ce panorama est loin d'être exhaustif. J'espère qu'il permettra néanmoins au lecteur de comprendre les enjeux actuels de notre profession, et qu'il convaincra - si besoin était - les autorités compétentes de la nécessité de sa reconnaissance. L'enthousiasme, dont il est question dans le dernier article, ne saurait avoir raison de tous les obstacles, et il est urgent que les services éducatifs et culturels des musées disposent de moyens suffisants afin de mener à bien un travail de collaboration interdisciplinaire, et de relever ainsi le défi de leur pluridisciplinarité.

The Educational Role of Museums towards the XXIst Century

Nicole Gesché-Koning
Chair of the Committee
for Education and Cultural Action

The Committee for Education and Cultural Action (CECA) is pleased to present this second issue in the ICOM *Study Series*. It is not mere chance that it follows the issue on Conservation-Restoration¹. The task of a museum is surely to conserve collections, but must not museums also communicate to the public the messages offered by the objects on display? Jean Capart, the founder of Belgian museum education, already recognised the educational mission of a museum when in 1922, after a trip to the United States, he defined the double function of a museum: scientific and inward-looking, and communicative and outward-looking².

This idea of opening the museum to the public and its educational mission³

is now taken for granted. ICOM recognised this mission from the very beginning of its existence, and CECA has since then always been able to count on the support of ICOM for the development of its activities¹. An International Committee on Education was created in 1953. Ten years later it took its present name of CECA (Committee for Education and Cultural Action). Today it is one of ICOM's largest committees with over 1000 members, among whom are some 700 voting members.

The major event of our committee is without doubt our Annual International Conference. Among those for which Proceedings have been published let us mention the meetings of Svendborg, Denmark (1981), *The Exhibition as an Educational Tool*; Düsseldorf, Germany (1984) *Museums and the World of Work*; Barcelona, Spain (1985) *The Educational Staff and Research*; Nafplion and Athens, Greece (1988) *Establishing, Maintaining and Developing Museum Education Services*; Jerusalem, Israel (1991) *The Museum and the Needs of People*; Delhi and Calcutta, India (1993) *Integration of Museums in a Multicultural Society*; Cuenca, Ecuador (1994) *Museums, Education and Natural, Social and Cultural Heritage* (under print); and finally that of Stavanger, Norway (1995) *Museums and the Community* (under print).

CECA has always had an active publication policy and regularly issues a *Newsletter* (formerly *Market of Ideas*) and the annual journal *ICOM Education*. The CECA Board has set itself a new task for this triennial period, namely the publication of the *International Handbook on Museum Education* under the supervision of Graham Carter (United Kingdom) and myself.

Museum education is no longer limited to a simple guided tour for schools or a children's workshop in some remote corner of the museum. Education programs often go beyond the confines of the museum itself. This is why this issue starts with an article on the wider role of museum education. What is this role nowadays, ten years after the urgent appeal of the ICOM IXth General Conference in Buenos Aires²? The articles presented here have been chosen to reflect the incredible variety - and thus richness - of our profession and its numerous fields of investigation: the first part deals with issues which are more related to research and theory but are

nevertheless necessary to support our daily work, i.e. the necessity of adequate training about the preservation of our heritage, evaluation techniques, the motivation of museum visitors, behaviour studies, the educational presentation of the exhibits, constructivist theory, the purpose and real goals of museum workshops and opportunities for further training.

In the computer and image era, museum educators should remain critical and conscious of their mission. However, they should also bear in mind that no media or sophisticated new technology will ever be able to supplant the museum and what makes its specificity, a place where one is in direct contact with the object. The supportive role of these new technologies cannot be ignored, and museum education still has a lot to explore in this matter³.

The second part of this issue deals with case studies like museums and communities, museums and schools, museum outreach, museums and minority groups, in science or natural history museums.

This overview is far from complete. I nevertheless hope it will give the reader the opportunity to understand what is at stake in our profession and convince the relevant authorities of the necessity of its recognition - if still necessary. Enthusiasm alone, as mentioned in the last contribution of this issue, cannot overcome all obstacles, and museum education and interpretation departments urgently need sufficient funding to achieve interdisciplinary collaboration and cope with the challenges of its pluridisciplinary mission.

¹ *Study series, Conservation Committee (ICOM-CC)*, ICOM, 1995.

² Claudine Deltour-Lévie and Nicole Gesché-Koning, "Le service éducatif des Musées royaux d'art et d'histoire, un travail d'équipe", *La Vie des musées*, 1986/1, p. 49.

³ Nicole Gesché-Koning, "La mission d'éducation du musée", *Proceedings of Musées, civilisation et développement*, Amman, Jordanie, 1-4 April 1994, pp. 385-389.

⁴ "Le rôle éducatif des musées. Le CECA au fil des ans", *Info Musées*, Bulletin d'information trimestriel de l'Association francophone des musées de Belgique, n°4, Spécial CECA, March 1996, pp. 3-14; "CECA survey", *ICOM Education*, n°15, pp. 35-37.

⁵ ICOM '86, *Proceedings of the XIVth General Conference*, Buenos Aires, 26 October - 4 November 1986, Resolution IX, p. 108.

⁶ This publication will come to light for the annual CECA conference (Vienna, September 1996) whose theme is "Locally and worldwide: The new strategies in museum communication".

The Wider Role of Museum Educators

Graham Carter

Head of Education and Interpretation
National Motor Museum,
Palace House and Gardens
Beaulieu, United-Kingdom

Résumé

L'éducation muséale n'a guère été épargnée par les remous qui ont affecté ces dix dernières années le monde des musées britanniques. Afin de répondre au mieux à sa fonction de service public, le musée doit pouvoir compter sur un personnel éducatif intégré au cadre, et non seulement spécialisé dans une discipline particulière et doté d'une qualification en éducation, mais pouvant justifier également d'une expérience pratique et psychologique, ainsi que d'une connaissance des différentes théories de l'apprentissage et des nouvelles techniques de communication. Le rôle de la direction ne doit pas se limiter quant à lui à la seule étude des collections.

For the past decade or more, working in Museums in the UK has been like walking on quick sand while being shaken by intermittent and unpredictable earthquakes. Nowhere has this analogy been more apt than in the sphere of Museum education. The ever shifting quicksands have been caused by constant change in the social, educational and economic environment in which we work, while the major earth tremors have been triggered by politically motivated changes initiated by the Government of the day. There have been changes in the financing and management of the national Museums, capping of expenditure in local authorities, the introduction of a National Curriculum in UK schools and pressure to rely more heavily on corporate and individual sponsorship of Museums. Inevitably, Museum education has not been immune to these major changes and the overall impact has not always been beneficial.

As managers in industry and commerce are very well aware, the management of change is the most difficult and complex challenge which we face, particularly where this change involves a shift in the basic culture of the organisation. In Museums, the need for increasingly effective management has obliged curators and directors to

develop and, in some cases acquire, a whole range of new skills to add to their already highly developed academic and museological abilities. One of the most essential skills is the full and effective deployment of the abilities of their existing staff. Herein lies the opportunity for Museum educators to play a much more pro-active role in the maintenance and development of their establishments.

Personally, I have never subscribed to the belief that education is a secondary (and, therefore, second rate) function of museums. On the contrary, I believe education to be an absolutely central Museum function, and ultimately, the function which justifies the support of Museums from the public purse. Of course, collection and conservation of objects relating to our natural and cultural heritage and research on these objects remain fundamental to the mission of Museums, but the information so acquired remains valueless unless it is made available to the world community. This process of communication is an educational activity. Acceptance of education as a core Museum function should be reflected in the management structure of the establishment. The senior educator on the Museum staff should, therefore, be a member of the main management committee with a status equivalent to that of senior curators in other Museum departments. This should allow the Museum educator full participation in the professional management of the institution ranging from definition of the "mission statement" to the nature of the Museum's publications.

Naturally, the degree to which a Museum director can make effective use of his/her Museum educator depends on how he/she regards the importance of the post and the ability of the individual. If the educator is regarded as the person who only meets and deals with school groups, then probably 80% of their potential for contribution to the overall work of the Museum is already ruled out. On the other hand, if the educator is considered as the communications bridge between the Museum, its staff and collections, and its audience, then he, or more often, she will be able to contribute fully to the effectiveness of the organisation.

Achievement of the maximum contribution will depend on qualities and qualifications of the education officer involved. I would expect this person to be a good graduate in an appro-

priate discipline with a postgraduate educational qualification and practical experience at some level of the educational service appropriate to the particular Museum. It is highly likely that such a person would be the only member of the Museum management team to have any professional qualifications and experience in the psychology and theory of learning and in appropriate communication techniques. These strengths should be deployed for the overall benefit of the Museum.

Given suitably qualified education staff and a sufficiently open management philosophy, there are many areas to which education can make an enhanced contribution.

1 A Wider Educational Role

It is assumed in all that follows that the definition of education associated with the Museum is a wide one. In these circumstances, the education officer will be involved in development and delivery of adult and informal education and also, possibly of Outreach programmes. The adult activities will include evening lectures, weekend courses, in-service training days. Outreach programmes may include touring collections or community education programmes in both urban and rural locations.

2 Interpretation

Far too often, it appears, education staff are presented with a completed display or other interpretive product, and are then asked to develop its educational potential. At this final stage, it is almost always too late to derive maximum educational benefit from this development. Education staff, should, as of right, be members of the project management team for any new project from day one.

a) Exhibitions

The Museum director should naturally carry lead responsibility for all development of new displays and exhibits. However, it may be decided to delegate responsibility for detailed development work to a project team. Such a team will comprise those members of the Museum management and staff who are best equipped to deal with a particular subject. However, the Museum educator (and a representative of the design team, if there is one) should be members of the project management group from

its initiation. While curators should be responsible for proposing the exhibition theme for the selection of objects to be included, and for the accuracy of information made available to the visitor, the Museum educator should feel able to influence the final selection of objects and participate in the writing and other preparation of supporting interpretation. Moreover, in some cases, it may be appropriate for the educator to chair the project team. Incidentally, the team itself need not be strictly hierarchical. The director should appoint to the team all those members of staff who are intellectually or professionally equipped to make a contribution. In some cases, this may encompass junior members of different departments. The educator should act as representative of the public in the development process and should have final oversight of all captions and other interpretive techniques to be used.

b) Live Interpreters

All Museums employ staff facing and dealing with members of the public. Where possible, in addition to the necessary security function, these staff should have an interpretive role. The education officer should be responsible for the provision of the background information which they require in order to fulfill this role. Where costumed interpreters are employed, this information should include not only specific detail of exhibits, but also details of the persona in which the individual acts and that person's relationship with other people involved in interpretation.

c) Catalogues & Guidebooks

Although many curatorial staff use the publication of expensive exhibition catalogues as a means of demonstrating their own subject knowledge and expertise, these catalogues are rarely suitable for use by the uninformed lay visitor. Wherever possible, academic catalogues should be supplemented by more comprehensible guides for the general visitor. To ensure an appropriate standard of communication, these guides should be either written or edited by the education staff.

d) Interactives

Interactive exhibits may be deployed for the benefit of either adult visitors or children. In either case, the logic and methodology of

the interactive experience should be either planned or approved by the Museum educator. This procedure should ensure that the intellectual level of the instruction is appropriate to the chosen audience.

e) Other publications

Naturally, the education officer will be responsible for the content, design and formulation of all specifically educational publications. However, participation may also be appropriate in other publications designed for the general public.

3 Training

Rapid changes in the cultural and economic environment in which Museums have to function require rapid adaptation by members of Museum staff. All those in positions of authority are being required to develop business management skills to set alongside their curatorial skill, while all staff meeting the public must develop improved skills in visitor service. These new skills can only be developed through an intensive training programme. In most cases, the Museum educator is the only professionally qualified teacher/trainer on the Museum staff, and should, therefore, be responsible for the delivery of training programmes. Whether the education officer actually provides the training or co-ordinates the provision, depends on the skills and experience of the individual. Certainly, he or she should be capable of delivering the staff training in the areas of customer care,

security, guiding and talking to groups. There will also be a need to provide each staff member meeting the public with adequate background information on the exhibits.

At management level, more sophisticated training will be required. Depending on the particular subject of a training course, the educator may need to co-ordinate the use of outside trainers. Skills required by the modern curator are many and varied. All should be trained in leadership, team building, communication, delegation, appraisal, managing meetings, staff development, financial management, etc. Both management and staff training should be seen as a continuous process with refresher courses held at intervals. There will always be a central training requirement, which could encompass statutory health and safety requirements, safety in operation (lifting loads, safe storage, using machinery, dealing with fires, etc.), First Aid and, in the UK at least, emergency action (dealing with bomb threats).

Conclusion

The full integration of the Museum education staff into the public activities of the Museum and the private activities of staff development will enable the Museum director to ensure that these staff deliver a service which makes maximum use of their skills and provides enhanced value to the establishment which far exceeds that derived from simply dealing with educational group visits.

Sauvegarde du patrimoine et formation : un défi urgent à relever

Catheline Périer-D'leteren

Ex-Présidente du Comité

de conservation de l'ICOM

Professeur à l'Université libre de Bruxelles

Summary

In museums, public awareness of heritage protection issues should be encouraged and taught by professional museum educators and trainees as well as by tourist guides. The pedagogical role of museum educators is crucial here. The ICOM Conservation Committee wishes to establish joint programs of public awareness with CECA. As many museum educators have a Masters in arts, universities ought to introduce in their curriculum specific courses and seminars on a pluridisciplinary approach to our heritage and how to deal with and/or face the different problems of conservation-restoration. Specialised institutions like universities, restoration institutes, international committees within ICOM, i.e. CECA among others, should collaborate in order to meet the largest possible public and initiate it to the need of preventive conservation.

Les instances nationales, européennes et internationales se préoccupent à présent de façon prioritaire à la sensibilisation du public au patrimoine. La volonté d'agir est manifeste et une série d'actions est entreprise ou encouragée, notamment au sein des programmes développés par la Commission européenne¹ et par le Conseil de l'Europe², mais aussi par des organisations gouvernementales comme l'ICCROM³, ou non gouvernementales comme l'ICOM et sa consœur pour l'architecture, l'ICOMOS. Il y a toutefois un manque de synergie entre les différents organisateurs qui souhaitent valoriser le patrimoine, et un intérêt mitigé dès qu'il s'agit de développer une réelle politique de sauvegarde.

La sensibilisation au patrimoine passe nécessairement par la voie de l'éducation, et en premier lieu par celle des formateurs. Elle implique un type de formation continue qui s'exercerait dans l'idéal aux divers stades d'évolution de l'homme : au cours de la scolarité, à l'université et dans le monde

professionnel, pendant la retraite et pour le troisième âge. Or, comme les musées attirent toutes les catégories d'âge précitées, leurs éducateurs ont une fonction pédagogique essentielle à remplir. Les services éducatifs de la plupart des musées européens, conscients de ce rôle, mettent en œuvre des programmes très variés pour drainer l'intérêt des visiteurs. Force est cependant de constater que la part d'attention accordée aux problèmes de conservation-restauration des œuvres d'art est minime, et même inexistante dans certaines institutions. C'est pourquoi le Comité de conservation souhaiterait que le Comité pour l'éducation et l'action culturelle joigne ses efforts aux siens pour concevoir des actions pilotes de sensibilisation dans ce domaine.

La conjoncture culturelle et économique actuelle est favorable à ce type d'entreprise. En effet, le nombre d'institutions muséales dans le monde ne cesse de croître, et la diversité de concepts des musées et des collections touchent un public de plus en plus large. Les expositions temporaires se multiplient, de façon d'ailleurs excessive, et drainent des foules considérables. Un tourisme culturel cherche à se substituer au tourisme traditionnel. Enfin, la protection du patrimoine, sa conservation et surtout sa restauration suscitent un intérêt accru de la part des médias, quoique encore bien insuffisant, tandis que les autorités politiques conscientes de «l'enjeu» que représente le patrimoine aux yeux de l'électorat, commencent à prendre davantage de mesures en sa faveur.

Toutefois, ces aspects apparemment positifs oblitérent partiellement la situation réelle qui est tout à fait inquiétante, car le patrimoine est davantage instrumentalisé que protégé. Il sert principalement une politique au sein de laquelle la place dévolue à la bonne pratique de la conservation-restauration est négligeable. Cette situation de fait appelle dès lors une réaction énergique de la part des responsables du patrimoine, s'ils désirent vraiment cesser d'hypothéquer son avenir. Le tourisme culturel durable, label très prisé ces dernières années, ne sera rendu possible que si chacun apprend à respecter l'intégrité physique et/ou symbolique d'une œuvre d'art, d'un monument ou d'un site.

Depuis de nombreuses années déjà, le Comité de conservation milite en ce sens. Il a largement contribué par exemple, avec d'autres organismes

internationaux, au développement de la conservation préventive et à la pratique d'une réflexion déontologique préalable à toute intervention de restauration⁴. En 1995, il a publié le premier numéro de la série des *Cahiers d'études* des comités internationaux de l'ICOM. Cet ouvrage, consacré aux enjeux actuels de la conservation-restauration, était destiné à sensibiliser les professionnels de musées⁵. Le Comité se propose aujourd'hui d'étendre son action de sensibilisation au patrimoine au sein même des musées. Pour atteindre cet objectif, le travail devrait être développé simultanément sur plusieurs fronts.

- Entreprendre une formation adéquate des éducateurs de musées afin qu'ils soient capables d'intégrer à toute visite guidée des commentaires appropriés sur la conservation préventive et les matériaux constitutifs des œuvres - raison d'être de leur fragilité - ainsi que sur les techniques d'exécution.
- Organiser des cycles réguliers de conférences-débats sur des problèmes de conservation-restauration spécifiques aux collections ou propres à certaines œuvres-clés du musée.
- Créer au sein des collections permanentes un parcours jalonné de notices scientifiques, qui amèneraient les visiteurs à découvrir les objets dans leur état de conservation actuel, résultat de leur histoire matérielle, et même concevoir sur ce thème un parcours ludique qui stimulerait la curiosité des jeunes.
- Développer une politique de mise en valeur scientifique des œuvres restaurées, avec comme substrat, des expositions didactiques, et surtout des publications de vulgarisation de haut niveau conçues par les services éducatifs des musées en collaboration avec les restaurateurs et les conservateurs.
- Réaliser lors d'expositions temporaires, parallèlement à l'investigation scientifique des œuvres, la plus souvent illustrée, une section didactique sur leur restauration. Cette dernière, toutefois, ne doit pas se limiter à la présentation des objets avant et après restauration, comme c'est généralement le cas, mais bien éduquer le public à les lire dans leur matérialité nouvellement révélée.

Le spectateur, en apprenant à reconnaître les particularités stylistiques et techniques caractéristiques à chaque

type d'œuvre, comprendrait simultanément ce que la restauration ne peut en aucun cas altérer pour que le message originel de l'œuvre soit préservé. Ce genre de section constituerait une sorte de parcours initiatique que l'éducateur de musée devrait encore étayer d'exemples concrets dans les salles. Ainsi, il amènerait le visiteur à découvrir l'individualité artistique d'un peintre par une analyse conjointe du style et de la technique d'exécution, montrerait comment cette technique varie en fonction des aspirations esthétiques du maître, ferait comprendre le rôle optique des glacis, des empâtements ou des frottis et l'importance des textures de surface dans le rendu de l'espace et de la lumière, ou encore relèverait la juste recherche d'équilibre entre transparences et opacités. Autant d'observations qui rendent possible une autre vision de l'œuvre d'art, complémentaire de celle la plus fréquemment enseignée.

Ainsi initié, chaque visiteur se rendrait rapidement compte par lui-même des mesures préventives qui sont à prendre pour éviter que les éléments essentiels à une juste perception de l'œuvre ne s'altèrent. Il pourrait révéler les nettoyages drastiques qui tendent, par exemple, à réduire les peintures à leur simple reproduction photographique et refuser un tel traitement pour son propre patrimoine. De la même façon, il trouverait des arguments pour refuser les vernis épais qui masquent les effets picturaux désirés par l'artiste et les rentoilages trop durs qui effacent le vécu de l'œuvre. Les expositions rétrospectives offrent, trop souvent hélas, d'excellents exemples d'intervention dans le domaine de la restauration à commenter de manière critique. La valeur didactique de la démarche de l'éducateur réside alors dans la possibilité unique qui s'offre à lui d'une approche comparative - œuvres bien ou mal restaurées, rentoilées ou non, nettoyage partiel ou total, couche de vernis légère, épaisse ou trop brillante.

La diversité des publics qui fréquentent les musées exige de l'éducateur de cibler son discours pour se mettre au diapason de chacun, enfants, adolescents, curieux, amateurs éclairés, personnes âgées. Il réussira de cette façon à sensibiliser une part importante de la population à une approche critique de l'œuvre d'art et de son état de conservation. Les propos techniques et portant sur la restauration doivent bien entendu être intégrés dans une approche globale de l'œuvre, qui n'oblitére pas les données

historiques, iconographiques et stylistiques. Ainsi, la lecture de l'objet enseigné au musée sous tous ses paramètres porterait ses fruits dans le privé et pourrait s'appliquer à tout type de patrimoine. Nombreux seraient alors les visiteurs qui auraient acquis petit à petit les réflexes adaptés pour protéger les œuvres en les soustrayant à des présentations ou à des manipulations dangereuses, mais également et surtout à des pratiques de restauration inadéquates ou abusives.

Afin de comprendre le bien-fondé des mesures de conservation et de restauration et juger de la légitimité des interventions, le public doit apprendre à reconnaître par lui-même ce qui fait la qualité intrinsèque d'une œuvre d'art et à sentir où réside le message à transmettre aux générations futures. Pour amener le visiteur à ce stade, l'éducateur de musée doit impérativement s'ouvrir lui-même à de nouveaux domaines qui sont complémentaires de ceux traditionnellement enseignés en histoire de l'art. Il est donc urgent qu'il dispose d'une formation spécifique en technologie des arts plastiques, en conservation-restauration, et en investigation scientifique des œuvres d'art pour aborder les collections sous un angle moins livresque.

La majorité des guides de musées sont diplômés en histoire de l'art. Il incombe donc aux universités d'introduire dans les cursus d'étude et les programmes d'agrégation, un nombre suffisant d'heures de cours spécifiques et de stages pratiques pour former les étudiants à une approche pluridisciplinaire du patrimoine débouchant à terme sur une connaissance de l'objet ou du monument dans sa matérialité, et sur une prise de conscience des problèmes de conservation-restauration qui leur sont inhérents.

La vogue actuelle du CD-Rom et du «musée virtuel» oblige par ailleurs l'éducateur à relever un immense défi, celui de continuer, à l'aube de ce XXI^e siècle, à amener le visiteur à l'œuvre d'art, car aucune illusion ni substituts, si parfaits soient-ils, ne remplacent la connaissance rapprochée de l'objet, la seule qui suscite une émotion véritable. Pourtant, le musée imaginaire d'André Malraux devient chaque jour «plus présent» dans le monde. A court terme, il risque de devenir tellement imaginaire que, sans antidote ou complément d'approche proposé par l'historien de l'art, l'homme sera condamné à ne plus voir le patrimoine dans sa réalité physique, «à ne plus le sentir avec les yeux» comme le disait

Goethe, et partant à le laisser se détruire dans une totale indifférence. «Ah, ces foutus originaux», écrivait Malraux, et bien il est grand temps et même primordial que les éducateurs apprennent au public à en jouir tout en se souciant de leur pérennité.

Le devoir de sensibiliser le public au patrimoine ne se limite naturellement pas aux seuls éducateurs de musées. Il concerne aussi les guides touristiques, auxquels il échoit quotidiennement de faire respecter par leurs clients les monuments et sites qu'ils visitent. Vœux pieux qui, une fois encore pour que les résultats soient efficaces, demandent une préparation pédagogique réfléchie. Celle-ci devrait être dispensée dans les écoles de tourisme et les diplômes de tourisme des universités, selon une grille d'approche comparable à celle élaborée pour les services éducatifs des musées. Enfin, toute initiative, tout effort entrepris dans ce domaine devraient faire l'objet d'articles réguliers dans la presse, mais là encore le journaliste manque le plus souvent d'une formation élémentaire.

D'innombrables initiatives d'ouverture du patrimoine au public sont prises chaque année dans le monde entier, les itinéraires touristiques créés par le Conseil de l'Europe comme les Journées du patrimoine en sont des exemples représentatifs. Malheureusement, la dimension de la sauvegarde du patrimoine est presque toujours absente des préoccupations des organisateurs. Fait plus grave, les restaurations réalisées pour rendre les œuvres accessibles répondent rarement aux critères d'intervention admis. On rénove plus qu'on ne restaure, ce qui est aussi lié au manque de connaissance ad-hoc et à la formation des intervenants choisis. Ces derniers sont le plus souvent des artisans qui possèdent le métier mais manquent, dans l'approche des problèmes, du jugement critique propre aux restaurateurs diplômés. Enfin, les normes de sécurité et d'environnement sont trop fréquemment négligées. En effet, qui s'interroge sur les nuisances causées par un afflux de personnes dans des lieux trop exigus ou lors d'expositions temporaires? Quel homme politique prend des mesures drastiques pour stopper la pollution due aux autocars qui laissent tourner leur moteur diesel et pour sanctionner les contrevenants? Qui s'indigne du sort d'objets fragiles prêtés trop fréquemment pour des expositions prestigieuses? Qui dénonce les mauvaises restaurations, causes de dégâts

irréversibles⁶? Journalistes, historiens de l'art, quelque soit leur vie professionnelle, responsables culturels, anti-quaires, politiques, galeristes, tous devraient avoir le courage, dans leur domaine de compétence, de défendre le patrimoine, en action et non pas seulement en parole!

Une Journée du patrimoine consacrée à sa préservation devrait être organisée prioritairement dans le monde entier. De même, il serait souhaitable que tous les organismes concernés par la conservation-restauration unissent leurs efforts dans un futur proche pour réaliser les premiers modules d'enseignement, résultat de réflexions communes et une espèce de vade-mecum de la formation des guides qui pourrait être diffusée sous différentes formes (publication, CD-Rom, vidéo...) et être utilisée par les formateurs de toute catégorie. L'Université libre de Bruxelles, en collaboration avec l'Université de Gand, l'ICCROM, l'ICOM, l'ICOMOS, des instituts et écoles de restauration renommés, comme l'Institut royal du patrimoine artistique à Bruxelles, la Kongelige Danske Kunstakademi de Copenhague, la Stichting Restauratie Atelier Limburg à Maastricht ont décidé d'agir et de lancer des projets pilotes dans ce domaine. La collaboration du CECA à cette vaste entreprise, qui cherche non seulement à rencontrer un public le plus large possible mais surtout à lui donner les moyens et l'envie de protéger le patrimoine qui l'entoure, serait la bienvenue.

¹ Les différents types d'appels à manifestation d'intérêt lancés par la DG X la Direction générale et le Programme Raphaël (1996-2001) portant par exemple sur les richesses archéologiques, le jumelage des musées, l'Europe baroque et la formation.

² Les Itinéraires culturels du Conseil de l'Europe dont plusieurs ont déjà été mis en œuvre: *Saint Jacques de Compostelle*, *Les Cisterciens*, *Parcs et jardins*, *L'héritage d'Al Andalus...*

³ Voir les programmes types conçus par l'ICCROM dans le cadre de Media Save Art 1994/95, et le projet *La Ville sous la ville*.

⁴ *Le conservateur-restaurateur : une définition de la profession*, texte présenté en version définitive en 1984 à Copenhague.

⁵ *Cahiers d'étude du Comité de conservation (ICOM-CC)*, ICOM, 1995.

⁶ C. Périer-D'Ieteren, Conférence générale de l'ICOM à Québec, «Restauration ou destruction?», *La Vie des musées*, n° 8, 1995, p. 66-68; Conférence générale de l'ICOM à Stavanger «Expositions ou destruction?», *Bulletin de l'Association francophone des musées de Belgique*, n° 2, 1995, pp. 14-18; «La sauvegarde des icônes», Actes du Colloque *The Conservation of Icons. An Approach towards Problems, Methods and Materials, Used in Conservation Laboratories, Worldwide*, ICOM-Grèce, Groupe de travail sur la conservation des icônes, Athènes, 10-14 octobre 1995 (sous presse); «Comment concilier l'accès au patrimoine et sa sauvegarde», Actes du Colloque *Le tourisme culturel dans la perspective du tourisme durable*, Palma de Majorque, 24-26 novembre 1995 (sous presse).

Reflections on Visitor Research and Training. Are Exhibition Evaluation and Visitor Studies Relevant to Docent Training?

Dorothee Dennert
Head of Education
Haus der Geschichte
Bonn, Germany

Résumé

Les résultats des enquêtes sur le visiteur et l'évaluation des expositions ont un rôle significatif à jouer, non seulement dans l'établissement de services répondant aux besoins des visiteurs, mais également pour la sélection et la formation des guides indépendants. Grâce aux données qualitatives et quantitatives ainsi obtenues, le potentiel des services aux visiteurs peut être accru, de même que la responsabilité et la légitimité mêmes du musée.

It is common knowledge that exhibition evaluation and visitor research are used to improve exhibition planning and design as well as museum marketing and public relations. Systematic observation of groups and visitor responses, whether through organised surveys, comment books or letters, may also provide additional information. Less common is the application of evaluation results and visitor research in the area of museum education, specifically to the selection, training and further education of freelance museum docents who provide - in many cases - most of the interpretive services of many museums.

In Germany, the concept of visitor orientation is assuming an increasingly important role in museum work. Many museums have adopted visitor orientation as an institutional philosophy and measure all aspects of their work in the light of this concept, whether it be the selection of topics for temporary exhibitions, the provision of services to individual visitors and groups, or the organisation of exhibition-

related special events and programmes.

This contribution looks at the provision of services for organised groups, specifically docent-led tours. If a museum decides to provide services for organised groups on a larger scale, this work can almost never be accomplished exclusively by permanent museum staff. The museum will, almost certainly, have to hire temporary, freelance docents to cover demand. Their selection and training should reflect the approach to visitor orientation and the mission of the museum. Providing docent services for groups is very costly - in time, personnel monetary resources - therefore it can and should be conducted as effectively as possible. Decisions to provide costly services can be better justified if costly services respond to real needs based on empirical data and observation and not just on assumptions.

Organising Visitor Services

A number of questions need to be answered when setting up visitor services, such as:

- What is the space situation in the different areas of the museum? What impact does this have on the optimal size of organised groups and on the interaction of organised groups and individual visitors?
- Are there acoustic problem areas in the exhibition? What solutions do these require? Is the situation so extreme that the use of electronic guides is necessary?
- Can tours be provided simultaneously; if so, how many?
- How large should organised group tours be?
- What audience is the museum trying to reach? Is it the "everyday visitor" or a museum "elite"? Are visitors well versed in museums or are they first-time guests? What is their educational level?
- Are modern, A/V media used in the exhibition? How do different target audiences respond to this? How can they be used in docent-led tours?

Exhibition evaluation and visitor research can help answer many of these questions:

- Exhibition evaluation, which ideally also looks at space questions, can provide information about future group size, movement (e.g. stopping points, unfavourable areas, etc.) and tour length. The analysis of attendance data can provide information

about visiting patterns. With this information, it is possible to influence groups to organise their visits on days and at times with typically lower attendance. The Office of Visitor Services at the Haus der Geschichte, for example, has been relatively successful in encouraging organised groups, especially day-long teacher-training programmes and private sector groups (company events) to come on Fridays, the day with the lowest average visitor attendance.

- Visitor data can also provide accurate information about the composition of organised groups, so that resources for docent-led tours and related programmes can be distributed appropriately. Visitor data at the Haus der Geschichte shows that school groups, more than 1,000 tours in 1995, account for 20-25% of all organised groups. Thus, the primary target audience for these services is not, as in many other museums, mainly school-age children. Visitor data can provide information about the background of museum visitors. If, as at the Haus der Geschichte, many visitors are first-time museum goers ("everyday visitor"), then the interpretation of the exhibition must take this into account. This means that in addition to the specific message of a particular exhibition, the broader message of museum-as-medium needs to be addressed. These messages form the so-called "building blocks" of interpretation for every tour.
- Visitor research will show to what extent the use of modern media elements in the exhibition is accepted among various target audiences. This knowledge can help docents to adjust their comments according to specific needs among specific audiences.
- Visitor research and observation show that learning in museums is different to learning in other educational settings. Exhibition interpretation must reflect research results about learning patterns.

Docent Selection and Training

The analysis of visitor research is useful when establishing criteria for the selection and training of docents.

- Applicant Selection and Interviews
Each docent is a representative of the museum to the public. Applicants must be willing and able to convey the mission of the museum, including visitor orientation. The selection of appli-

cants should ideally reflect identifiable needs such as the types of target audiences the museum draws, including foreign language, age structure, etc. The policy at the Haus der Geschichte is to hire docents with different backgrounds and of different ages (students, retired professionals, women looking for additional work outside the home) in order to accommodate the wide range of audience segments that come to the museum.

The experience of the Haus der Geschichte has shown that it is helpful to have a two-phase selection process and conduct group application interviews. The first group interview is designed to gauge the applicants' motivation, initiative, group communication skills, and flexibility. For example, those who have indicated that they can conduct tours in foreign languages are asked - without prior warning - to conduct a part of the conversation in that language. The second group interview focuses on content matters. The applicants, who have been given literature about the museum and the so-called exhibition "building blocks" are asked to answer questions about the museum in general and the exhibition in particular. We have found that the two-phase group interview process provides us with a much better picture of the future docents which helps us with selection, but also gives us a preview of how we can adapt training to meet their needs. An unintended benefit is that this intense selection process provides the future docents - even before training has started - with a sense of what we want, and they have already become acquainted with their future colleagues.

- Training

The museum setting is highly visual, an atmosphere that triggers a variety of associations and reactions from individual visitors, depending upon education, age, specific life experiences, place of birth, etc. In addition, each museum has a unique setting, audience and mission. Training must reflect these points.

In the Haus der Geschichte, applicants who have successfully completed the two-phase interview process are asked to participate in a two-day training seminar. The seminar incorporates a variety of approaches including short presentations, discussions, working groups, and video training. Although the size of the group depends upon how many docents need to be trained, our experience shows that a group of around 12 participants is ideal.

Relatively soon after completing the training seminar, the docents are asked to conduct their first group tours so that they can gain experience as quickly as possible; generally an "easy" group without specific thematic or pedagogical demands is chosen for them. The museum educator and/or the coordinator of visitor services discusses the tour as part of an informal evaluation session before assigning other, more demanding groups.

- Evaluation

After the new docents have conducted several tours and feedback sessions, the museum educator and/or coordinator of visitor services then observes the docent during a group tour and conducts a more formal evaluation focusing on both content and communication skills. The Haus der Geschichte is in the process of developing a structured self-evaluation process for docents, which will include a questionnaire.

- Further Training

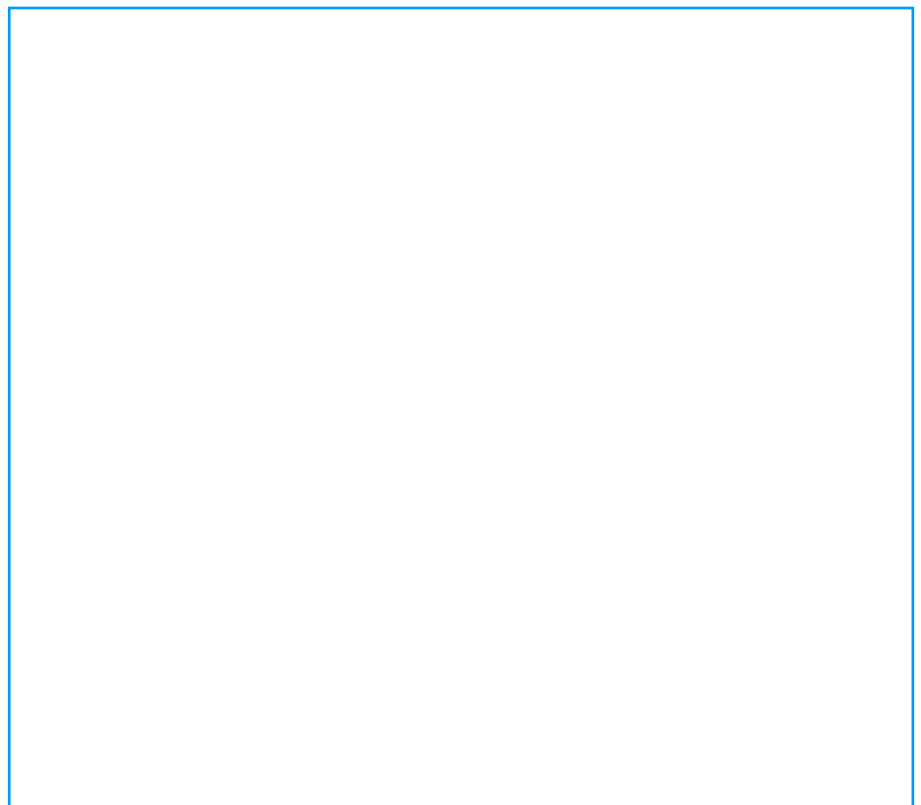
The Haus der Geschichte provides regular opportunities for its docents to continue their training and meet with each other to exchange experiences. Such events include lectures, workshops, lunchtime-meetings and special tours through the exhibition. Indeed, the evaluation sessions can also be understood as personalised training sessions conducted with the museum educator, coordinator of visitor services or a curator. In the

past, training topics have included special thematic tours of the exhibition, museum issues such as "Learning in Museums", "Results of Visitor Research" and communication skills, such as "Non-verbal Communication". Past presenters, in addition to the museum educator and coordinator of visitor services, have included the museum director, curators and outside experts.

Conclusion

The results of visitor research and exhibition evaluation can play a significant role in setting up and monitoring needs-oriented visitor services in general, as well as selecting and training freelance docents in particular. Basing museum education services, including the selection and training of docents on qualitative and quantitative data is one way of putting visitor orientation into practice. Moreover, it can also improve the provision of services and hence increase the accountability and legitimacy of the museum.

Indeed, the selection and training process of docents itself should be the target of evaluation measures to assess if and how visitor needs have been met. In turn, these results may uncover further needs, trigger new ideas and encourage additional projects that can make the museum more attractive to the public.



Réexaminer l'apprentissage du visiteur pour améliorer sa relation avec l'objet muséal*

Colette Dufresne-Tassé
Directrice, Maîtrise en muséologie
Université de Montréal, Canada

Summary

A new conception of adult learning and the elaboration of a new method of evaluating it enables us to understand 1) the variety of acquisitions made by a visitor during his/her observation of the museum objects on display, 2) how the information about the museum objects reach the visitor and his/her own creativity, 3) how these acquisitions participate in the development of the adult, both as a private individual and as a professional who is expected to offer special services to society.

L'apprentissage de l'adulte au musée est maintenant un sujet désuet aux yeux de ceux qui s'y intéressaient il y a dix ou quinze ans¹ ; ils ont l'intuition qu'une large proportion des acquisitions réalisées par les visiteurs leur échappent, car ils se sentent limités à l'examen des acquisitions factuelles² ou à celles que le concepteur d'exposition a prévues. Les professionnels, comme les chercheurs, déplorent une telle impasse parce qu'ils demeurent persuadés que l'apprentissage constitue un élément majeur et fort désirable d'une visite au musée.

Je vais m'employer à montrer que les problèmes qui entourent actuellement l'étude de l'apprentissage ne sont pas insolubles et que cette étude peut connaître une nouvelle vitalité. A mon avis, deux opérations sont nécessaires à la redynamisation de l'apprentissage : redéfinir la notion même, puis trouver une nouvelle façon d'étudier les acquisitions du visiteur en salle d'exposition.

Renouveler la définition de l'apprentissage

La définition de l'apprentissage héritée du behaviorisme est toujours valable ;

l'apprentissage est la modification du comportement ou du «potentiel de comportement» découlant de l'expérience d'une personne³. Je crois que la difficulté éprouvée par les muséologues tient au fait qu'ils restreignent de façon indue la variété des indices d'apprentissage qu'ils utilisent. Ils réduisent en effet ces indices aux seuls comportements immédiatement observables que sont les connaissances acquises au cours d'une visite. De ce fait, ils écartent les expériences qui créent chez une personne un «potentiel d'action», c'est-à-dire des capacités utilisables lorsqu'une situation favorable se présente. Si l'on tient compte de ces dernières expériences autant que de celles qui donnent lieu à l'énoncé de connaissances précises, on peut élargir la signification accordée au terme apprentissage jusqu'à lui faire englober toute acquisition qui contribue au développement psychologique d'une personne. Cette acquisition peut porter sur l'«univers», c'est-à-dire sur le monde extérieur à cette personne, mais aussi sur cette personne elle-même, ce qu'elle est ou n'est pas, en particulier sur sa façon d'interagir avec le monde qui l'entoure.

Les travaux des psychologues d'orientation cognitiviste et ceux des spécialistes de l'intelligence artificielle⁴ permettent de préciser les formes que peut prendre l'apprentissage. L'acquisition réalisée peut, et c'est le cas de beaucoup de connaissances, contribuer à un *élargissement* ou à un *approfondissement de l'idée qu'une personne se fait de l'univers ou d'elle-même*. Elle peut également *augmenter la variété ou la puissance des moyens d'action de la personne*. Elle peut améliorer, par exemple, sa capacité de discriminer, celle de traiter l'information reçue, celle d'élaborer de l'information nouvelle ou celle d'évaluer sa propre production.

Ainsi, conceptuellement au moins, on peut avoir accès à une grande variété de types d'acquisitions. De plus, les apprentissages d'un visiteur se trouvent reliés à son développement, en d'autres termes, à son épanouissement comme personne privée, comme travailleur ou comme citoyen.

Elaborer un moyen de connaître les apprentissages d'un visiteur en salle d'exposition

Les moyens habituellement employés dans les musées pour étudier l'apprentissage, le «tracking» et l'entretien post-visite, se révèlent inadéquats pour

repérer les acquisitions du visiteur qui contribuent à son développement psychologique. En effet, le premier de ces moyens offre de l'information sur les déplacements du visiteur, en d'autres termes, sur ses comportements plutôt que sur son fonctionnement psychologique. Dans certaines circonstances, il permet de penser qu'il y a eu apprentissage, mais il ne permet pas d'identifier précisément quelles acquisitions ont été réalisées. Quant au second moyen, l'entretien, le matériel qui en émane est inapproprié pour plusieurs raisons, en particulier parce que l'adulte ne peut se souvenir de toute l'information qu'il a tirée des objets qu'il a observés ou qu'il a lui-même élaborée au cours d'une visite. Lorsqu'on lui demande d'en parler, son rapport comporte forcément des lacunes et de nombreuses formes de reconstruction pour donner sens aux éléments dont il se souvient⁵. Son témoignage n'est donc pas valide.

On peut contourner les difficultés posées par ces deux moyens en adoptant une toute autre approche : en tentant d'accéder au fonctionnement psychologique même, au moment précis où celui-ci se déroule. Une série de recherches américaines et européennes ont montré que ce que dit un adulte, son «discours» pendant qu'il réalise une tâche de nature intellectuelle, traduit adéquatement le traitement qu'il impose à son expérience (en d'autres termes, à son fonctionnement), si l'on a pris soin de lui demander de verbaliser au fur et à mesure ce qu'il pense, imagine ou ressent, sans toutefois tenter de l'expliquer⁶.

Le fonctionnement psychologique et l'apprentissage comme sous-produit de ce fonctionnement doivent ainsi être extraits du discours du visiteur. Le Groupe de recherche sur les musées et l'éducation des adultes de l'Université de Montréal a développé un instrument pour réaliser cette extraction. La description de cet instrument et son utilisation sont complexes et ne sauraient être détaillées ici⁷. Je me bornerai à illustrer par des parties de discours de visiteurs chacune des formes d'acquisition correspondant à la conception élargie de l'apprentissage proposée plus haut.

A. Exemples qui illustrent une extension des connaissances d'une personne 1) sur le monde extérieur, et 2) sur elle-même.

1) Au début de la visite d'une exposition de mollusques, un homme dit : «Ah ! (lit l'étiquette). C'est un

busicon. Je savais pas qu'il y en avait des m... des mollusques comme ça!»

2) Dans un musée des beaux-arts, après avoir dit que les peintres québécois du XIX^e siècle devaient faire des portraits pour gagner leur vie, une visiteuse constate : «Je réalise que je suis une personne qui a des considérations économiques.»

B. Exemples illustrant l'approfondissement des connaissances qu'une personne possède déjà 1) sur le monde extérieur, 2) sur elle-même.

1) Dans un musée d'art moderne, une visiteuse explicite une découverte qu'elle a déjà faite : non seulement les artistes peuvent s'amuser avec les formes et les couleurs, mais ils l'ont toujours fait. «Un arc-en-ciel, euh... non, un feu d'artifice. Regarde-moi ça ces couleurs-là! Moi, j'ai déjà bloqué sur des peintures comme ça. Tu sais, moi, les Sainte-Anne avec la Vierge euh... les peintres, ils en ont peut-être eu assez. Ils peuvent s'amuser avec des formes, pis des couleurs. Après tout, moi je pense... les peintres, moi je pense qu'ils sont, qu'ils ont toujours fait ça. Après tout, si on est peintre, c'est pas pour s'emmerder!»

2) En terminant la visite d'une exposition d'astrolabes, une visiteuse, jeune mathématicienne, identifie la raison pour laquelle sa propre démarche et celle qu'elle enseigne ne sont pas satisfaisantes : «Je n'ai rien compris. C'est rare. Moi qui dis à mes étudiants : décrivez, soyez clairs, soyez logiques, déduisez, vérifiez. Eh bah ! aujourd'hui, j'ai réalisé toutes ces opérations-là. C'est peut-être pas suffisant. Je suis certaine qu'aujourd'hui ça ne l'était pas.» (traduit de l'anglais).

C. Exemple qui illustre l'augmentation de la variété et de la puissance des moyens d'action d'une personne.

Une visiteuse ayant longuement scruté une peinture dans un musée de beaux arts découvre qu'elle vient d'acquérir une nouvelle habileté, approfondit la signification de celle-ci, puis les répercussions de son utilisation. «Quel beau portrait... Je m'arrête. Pourtant, j'ai l'impression que tout ce que j'ai fait... maintenant, ah oui, me donne ce qu'il faut pour commencer à comprendre, à le voir, à v-o-i-r. Maintenant, j'ai l'impression que j'ai ce qu'il faut pour découvrir euh... une euh...

comme un historien, un... géographe, que j'ai qu'à les utiliser. C'est comique, j'ai l'impression d'une très très grande puissance ! et c'est à ma portée ! J'ai qu'à contempler, puis à me dire ce que ça signifie. D'habitude, quand une peinture m'accroche par la peau des yeux, j'en profite sur le plan esthétique... Je m'en saoule... Mais là, découvrir qu'en plus, je peux m'instruire, ah ! quelle merveille !... Bref, bref, bref, ça veut dire que je vais aller au musée me choisir une peinture de ce calibre-là et m'offrir un régal ! Pas besoin d'en voir dix. Une visite égale une, deux peintures. Copernicien... ce truc !»

En plus d'illustrer l'accroissement de la variété et de la puissance des moyens d'action dont un adulte dispose, cet exemple met également en relief trois phénomènes propres à l'apprentissage et la possibilité de les saisir à travers le discours du visiteur. Il s'agit du regroupement des acquisitions, leurs conséquences et de la créativité à laquelle elles donnent parfois lieu.

1. Les acquisitions d'un visiteur se présentent parfois sous forme de séries. Ici, les six acquisitions réalisées s'articulent de la façon suivante : a) Maintenant, je suis en possession de ce qu'il faut pour comprendre ; b) J'ai ce qu'il faut pour commencer à VOIR ; c) Voir va servir à comprendre ; d) Il me suffit de donner une signification à ce que j'observe ; e) Je peux m'instruire en me délectant ; f) Grâce à ce que m'apporte le contact d'une peinture importante, il me sera possible à l'avenir de me limiter à en regarder un très petit nombre au cours d'une visite.

2. Un visiteur saisit parfois sur-le-champ les conséquences de ce qu'il apprend, comme ici l'accroissement de sa puissance de traitement de ce qu'il observe au musée, puis la réduction du nombre de peintures qu'à l'avenir il traitera dans une même visite.

3. La démarche d'apprentissage du visiteur révèle parfois chez lui un dynamisme et même de la créativité. A partir de l'observation d'une peinture et d'une réflexion sur son fonctionnement au cours de cette observation, le visiteur découvre des éléments qu'il manipule par raisonnement. Son raisonnement est une activité autonome qui aboutit à quelque chose d'inattendu et de nouveau pour lui, en d'autres termes à une création : une stra-

tégie plus puissante que celle qu'il utilisait auparavant.

Optimiser l'interaction du visiteur avec l'objet muséal

L'examen des exemples décrits précédemment permet de croire que le pari fait au début de ce texte peut être gagné ; on peut identifier chez le visiteur d'autres apprentissages que des acquisitions factuelles. A la condition d'élargir la signification donnée traditionnellement par le musée à la notion d'apprentissage et de trouver un matériau adéquat - le discours du visiteur - convenablement analysé, on peut identifier une grande variété d'apprentissages.

L'étude des cinq exemples présentés permet aussi de saisir qu'un traitement pertinent du discours du visiteur met en relief une série de phénomènes qui entourent l'apprentissage, en particulier, les rôles joués tantôt par l'information que le visiteur tire de l'objet, tantôt par celle qu'élabore son dynamisme créateur. En somme, elle éclaire la complexité de l'apprentissage, et en même temps la forme que prend l'interaction de l'adulte avec l'objet muséal. Elle fournit donc au musée une information qu'il peut utiliser pour aider le visiteur à optimiser cette interaction, à en faire une expérience de délectation, riche en acquisitions variées qui contribuent à son développement.

* Les recherches sur lesquelles ce texte est basé ont été subventionnées par le Conseil de Recherche en Sciences Humaines du Gouvernement du Canada, et par le Fonds pour la Formation des Chercheurs et l'Aide à la Recherche du Gouvernement du Québec.

¹ D. Uzzell, «Les approches socio-cognitives de l'évaluation des expositions», *Publics et Musées*, 1992, n°1, pp. 107-124.

² E. Hooper-Greenhill, «Lessons in Learning», *Museums Journal*, 28 November 1995.

³ J.R. Anderson, *Learning and Memory*, John Wiley, New York 1995.

⁴ J.R. Anderson (ed.), *Cognitive Skills and Their Acquisition*, Hillsdale, NJ, Lawrence Erlbaum, 1981; M. Singley et J.R. Anderson, *The Transfer of Cognitive Skill*, Harvard University Press, Cambridge, MA, 1989.

⁵ N. et C. Savard, C. Dufresne-Tasse, «Comparaison de deux façons d'identifier les questions et les hypothèses formulées par le visiteur de musée», *Canadian Journal of Education*, 1994, n°19, pp. 94-99.

⁶ K.A. Ericsson et H.A. Simon, *Protocol Analysis*, The MIT Press, Cambridge, MA 1995.

⁷ C. Dufresne-Tasse, M. Sauve, A. Weltzl-Fairchild, A. Lefebvre, N. Banna, Y. Lepage et C. Dassa, «Validité du discours du visiteur adulte comme moyen d'étudier son fonctionnement psychologique ; description d'un instrument d'analyse de ce fonctionnement», *Publics et Musées* (à paraître).

Learning in Museums: Motivation, Control and Meaningfulness

Ross J. Loomis, Ph.D.
Department of Psychology
Colorado State University, USA

Résumé

Trois propositions permettent de comprendre le procédé d'apprentissage du visiteur. Il s'agit tout d'abord de prendre en considération ce qui motive son désir d'apprendre, et en quoi cette motivation diffère de l'apprentissage scolaire. La réponse se trouve en grande partie dans l'apprentissage intrinsèque ou auto-motivant. Deuxièmement, le visiteur doit avoir un sentiment de contrôle pour être réceptif à ce que lui offre le musée. Il doit ainsi pouvoir s'orienter ; ce contrôle peut être assuré par des visites guidées et un certain sentiment de confort. Enfin, l'interprétation éducative est un des moyens les plus efficaces pour assurer une expérience significative, à la base de tout apprentissage intrinsèquement motivant.

How does a psychologist look at the topic of learning in museums? For me, three words come to mind: Motivation, control and meaningfulness. Humans learn all the time and in all kinds of circumstances and places. What makes learning in a museum different?

Motivation

So often when people use the term "learning" they are talking about the school classroom or perhaps the training classroom of a business or industry. Societies invest enormous resources in *formal* learning opportunities. In their review of instructional psychology in the United States, Gagne and Dick' estimate that it would take an individual five years of work to locate and summarize all that has been written about applications of instructional psychology. Most all of this extensive amount of work is applied to formal learning situations where the learner is required to master a predetermined curriculum. The learner is rewarded for mastery and punished for failure. Furthermore, the rewards and punishments are controlled by others such as teachers and supervisors.

By contrast, learning in museums entails *informal* or *non formal* learning. Even when part of an organized group visit or programme, the emphasis is on informal learning without examinations or the usual requirements of a classroom. Certainly for the individual visitor learning is a personal experience that often occurs as part of a social occasion. It is an adventure in free or personal time.

Two ideas about informal learning are important. First, motivation is always a part of learning. Second, informal learning is based on *intrinsic* motivation. Arthur Melton² in a timeless paper entitled "Motivation and Learning", emphasized that motivation is an essential condition of learning. Motivation, rather a physical condition like hunger or a mental representation like an attitude, energizes or stimulates thinking and behavior that is a necessary condition of learning. In addition, motivation directs what behaviors or actions occur in a specific learning situation and defines what kind of consequences follow the action. Those actions that lead to positive or satisfying consequences are apt to be remembered and become part of the person's later behavior.

Unfortunately, it has been a common practice to separate learning from motivation. We often talk about cognitive *versus* emotional experiences. Today there is a growing awareness that cognition and emotion (motivation) occur together. Melton, of course, was aware of this relationship many years ago.

Intrinsic motivation refers to feeling that one is acting for the sake of the experience itself. A visitor studies an object and reads the label about it and goes away with a satisfied feeling that he or she has gained something. Sometimes one can even see the excitement of intrinsically motivated learning by watching a visitor attract the attention of a companion and explain, often through animated gestures, what has just been discovered.

Mihaly Csikszentmihalyi³ and Herman-son note that informal learning in museums must rely on intrinsic motivation. Under the best conditions visitors experience what Csikszentmihalyi calls *flow* whereby the visitor becomes completely involved in his or her interaction with the museum. What are the conditions for this kind of visitor involvement, and learning, to occur? Goals for what is to happen must be clear. There must also be

feedback or information given visitors that lets them know they are doing the right thing. In addition, the tasks the visitor is to do must be a good match to the visitor's skills and abilities.

Control

One problem is that visitors may find the museum a confusing and fatiguing environment. Modern museums with interactive displays and time consuming audio-visuals challenge visitors even more. The experience may be stimulating, but difficult to feel that one is in control. Control refers to the selective part of motivation. How does the visitor decide where to look? Where should the visitor go next? How should visitors invest the time they have that day to see the museum? Control is necessary for the conditions of flow or intrinsic motivation described by Csikszentmihalyi and Hermanson.

Three things can help establish a sense of control. First, the design of exhibits and museum buildings should provide orientation by giving visitors a perception of what is being interpreted and a conceptual basis for understanding what they are seeing. Second, guided experiences through groups led by educators or docents also provide a sense of understanding that helps the visitor feel in control of the museum environment. Third, anything that makes the visitor feel comfortable also gives a sense of control. Features, like benches where visitors can rest for a minute, that help to reduce museum fatigue adds to comfort. Fatigue makes it harder for visitors to concentrate. Making interactive or participative exhibits easier to understand and use also adds to comfort. Visitors will avoid things that make them feel uncomfortable.

Meaningfulness

Psychologists have known for a long time that if something is meaningful to the individual it is easier to learn and more apt to be remembered. The child that is slow to master lessons in school can be quick to remember details about sports or some other topic that is of great interest. Likewise, visitors often need some help to understand the meaning of objects they encounter in the museum. Docent presentations, labels, audio-visuals, interactive exhibits, and computer assisted encounters are all ways to communicate meanings to visitors.

Sometimes the objects themselves and the way they are exhibited can convey meaning. Meaningfulness carries its own intrinsic reward or motivation. Interpretation greatly contributes to meaningfulness as P. Williams¹ has illustrated in her emphasis on making a human connection between art objects and the visitor. Using innovative labels and other interpretive aids, visitors to an art museum are encouraged to learn about the object by learning about the artist as a person. Why did the artist create the object? What was life like at the time the artist lived? Through these human-connection labels, visitors develop a more meaningful experience with objects.

I close this part of my paper with a remembrance of an interview I had with a museum visitor. The interview was not a formal one, but came about by accident. I was to leave Austin, Texas by plane. The flight was canceled because of bad weather. I started a conversation with another passenger who was a businessman and had graduated from my University, Colorado State. He had studied social science with an emphasis on history. He had spent that day in Austin going to historic sites and museums, including the Lyndon Johnson Presidential Museum and Library. He explained that his job required traveling and his company had a policy of giving employees an occasional 'free' day to enjoy and relax. He had spent his day as he said, 'lost in history'. His reference to being lost in history reminded me of Csikszentmihalyi's idea of flow. The businessman was especially pleased with how his studies at the university prepared him to understand and experience the historic places he had visited that day. I was impressed with this important relationship between formal and informal education. Certainly, he had experienced the rewards of intrinsically motivated learning.

Evaluation of Visitor Learning

Museums provide visitors with unique learning experiences. Earlier it was mentioned how much work has been done to research and apply instructional psychology to formal learning environments at school and work. By comparison, only a small amount of visitor learning research has been undertaken. Such visitor learning research must answer questions that come from the three basic relationships between motivation and learning defined by Melton. That is, we must come to understand what in the

museum environment excites or captures the visitor's attention. Then, we must learn how that energizing of attention can be directed in a way that includes a sense of control for the visitor and permits a comfortable encounter with the museum. If this encounter results in a meaningful experience, it will become part of what is remembered. Unless we engage in such research, hopefully as an international community, we can only speculate about visitor learning.

¹ R. M. Gagne and W. Dick, "Instructional Psychology", in Mark R. Rosenzweig and Lyman W. Porter (eds.), *Annual Review of Psychology*, Volume 34, Palo Alto, CA, Annual Reviews Inc., 1983, pp. 261-296.

² A. W. Melton, "Motivation and Performance", in David C. McClelland (ed.), *Studies in Motivation*, Appleton-Century-Crofts, New York 1955, pp. 424-427. It should be noted that Melton did some of the earliest visitor studies in museums dating back to the 1930s.

³ M. Csikszentmihalyi and K. Hermanson, "Intrinsic motivation in museums: What makes visitors want to learn?", *Museum News*, May/June 1995, 74, (5), pp. 54-61.

⁴ P. Williams, "Making the Connection", in M. McDermott-Lewis and P. Williams (eds.), *The Denver Art Museum Interpretive Project*, Denver Art Museum, Denver 1990, pp. 77-100.

What Can Museum Educators Learn from Constructivist Theory?

George E. Hein

Director, Program Evaluation
and Research Group,
Professor, Graduate School of Arts
and Social Sciences,
Lesley College, Cambridge, MA, U.S.A

Résumé

Le constructivisme est une théorie de l'éducation basée sur le postulat suivant : tout apprentissage implique une activité du cerveau qui conduit à la connaissance. Il explique le phénomène bien connu du visiteur qui, dans un musée ou un programme muséal, établit ses significations propres. Un musée constructiviste doit offrir des expositions qui permettent au visiteur d'effectuer des rapprochements qui lui sont familiers, qui l'incitent à une exploration active, l'amènent à mettre en question ses croyances, et œuvrent pour un progrès social.

An observer at the Holocaust Museum in Washington D.C. notes that Holocaust survivors, conservative

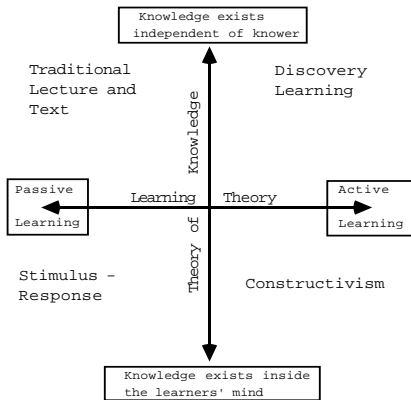
Christians, and teenagers see very different meanings in the exhibitions. He concludes that the visitors' "*diverse reactions reflect the beliefs and attitudes they brought to the museum as much as anything they discovered within its walls.*" Staff observe a young visitor at a new interactive exhibit at the Boston Museum of Science designed to replicate Galileo's experiments on falling bodies. The child ignores the intended use of the exhibit and instead devises a method to use the equipment to measure his own reaction time². Such personal exhibition interpretations are common. Should they be encouraged or do they illustrate problems that need to be overcome in the design of exhibitions and programs?

Constructivism, a relatively new name for a cluster of provocative educational theories, argues for the inevitability of the personal construction of meaning; that we learn by actively constructing understanding out of the vast array of phenomena that impinge on our senses³. Constructivism suggests that learning is an active process in which the mind does not simply absorb knowledge bit by bit, but transforms what is presented to the senses to reach understanding. Further, it argues that the product of this transformation - knowledge itself - is also something constructed in the mind rather than an approximation of "truth" residing outside the mind. Thus, constructivism addresses learning theory (how we acquire knowledge) and epistemology (what knowledge is).

A convenient way to visualize constructivism in relation to other possible educational theories is to describe all of them in terms of their positions concerning epistemology and learning theory. Theories of education can range along one dimension in their belief that knowledge, the product of learning, is external or internal in relation to the learner, and along another dimension in their belief that the process of learning is passive or active. The interaction of these two dimensions and their possible combinations is illustrated in the Figure⁴.

The significance of constructivism for education is that it focuses attention on the activities of the learner, rather than on the subject to be learned. In contrast, traditional text-and-lecture education is premised on beliefs that the most important prerequisites for teaching anything are to understand the structure of the subject - whether the principles of art history, the cultural his-

A Schematic Outline of Educational Theories



tory of a country, or the concepts of science - and then present that subject to the learner in small components, appropriate to be learned. The pedagogic task in traditional education is to analyze the structure and then reproduce it, starting with the simplest idea and going to the more complex, in small differentiated blocks suitable for absorption by a passive mind. Applied to museums, traditional educational theory leads to museum exhibitions and programs organized by conceptual structures that depend on the characteristics of what is to be exhibited. Thus, exhibitions are arranged chronologically or in other linear patterns to tell a specific story, designed to progress from the “simplest” to the most “complex” idea, or organized in relation to the perceived structure of a particular academic discipline.

Criticism of such organization has come not only from constructivist educators, but also from proponents of the “new museology,” who argue that any single conceptual organization reflects a curatorially imposed value system, not properties inherent in the objects. Traditional exhibitions, they argue, usually illustrate and support established ideas and the dominant culture-intellectual, social and political. Such exhibitions and programs are likely to ignore minority cultures, contributions of oppressed people to society, the role of women both in the past and the present, or unpopular views and alternative explanations of phenomena.

Accepting constructivist views of how people learn as well as what they have learned requires that we regard this learner focused approach as an opportunity for education, not a stumbling block. Besides the journalistic stories mentioned above, considerable research has demonstrated that learners do not necessarily accept what has

been taught in traditional school subjects. For example, many people's understandings of physics topics taught in school are highly personal, and different from physicists' accepted theories. Even adults who have completed university degrees in technical subjects may cling to unorthodox explanatory schemes!⁵ Conversely, many experiences suggest the power of basing education on familiar topics of intense personal meaning to the learner. The literacy methods of Paulo Freire illustrate this approach: Adults with little school experience and less confidence in their ability to learn school subjects can be taught to read when the texts they use are about familiar situations with great significance for the learner⁶. Finally, experiences in the education of persons with disabilities have taught us the necessity of making a connection with a learner before education can even begin; as illustrated by the example of Helen Keller's awakening at the water pump, when she learned her first sign, “water,” as the water flowed over her hand. Only after that mind-enriching experience was she able to learn.

To support the development of an active mind that has a continually increasing capacity to learn, we need to supply museum visitors with mind-enriching experiences. A characteristic that all such experiences share is the need to start with what is familiar and move beyond to challenge what people already think, know, or can do. Many examples from recent museum education work exploit visitors' existing knowledge to create new understanding. The Victoria and Albert Museum has invited southeast Asian women into the gallery and used their existing crafts skills to assist them to make a connection to its collections⁷. A European museum education project brought together hundreds of young people from several countries using the theme of rivers, with each group developing materials from its local, familiar waterways to share with others⁸. In Botswana, the National Museum uses its collections to travel around the country and share familiar objects from the different regions to educate and build a national culture⁹. Adult students use a museum's local cultural history collections to enhance their memories and their confidence in their ability to learn, as part of a continuing education course¹⁰.

Exhibitions and programs based on constructivist principles must also challenge visitors, encouraging them to move beyond familiar thought proces-

ses and established patterns. The display of slave shackles among fine colonial silver at a Baltimore Historical Society exhibition provides a dramatic shock to visitors' perceptions, but so do science exhibits that involve counter-intuitive principles, or art exhibitions that juxtapose unexpected subjects. The important component for learning is that the exhibition require visitors to go beyond what they already know and believe, but in a manner that is within their ability to make the new connection. Such “bridging” ability requires exhibit design that allows unusual connections without confusing the visitors. For visitors, the ability to make new associations is determined as much by personal background as by demographic attributes such as age, social status, or level of schooling.

Another requirement of constructivist education is the ability for the learner to engage with the material to be learned, not just to view it passively. “Interactive” exhibitions are required; exhibitions that allow the senses and the mind to explore, change, and question. Exhibits that allow visitors to organize and reorganize material, carry out experiments (not just push buttons!), or facilitate connections between components and examine the consequences of these insights provide such opportunities. Exhibitions should not be linear, but allow visitors to design their route, they should permit physical interaction with objects as much as possible, and provide varieties of explanations. Constructivist exhibitions both raise questions and provide visitors with avenues to explore possible answers to these questions.

Finally, constructivism recognizes the power and importance of social interaction in learning. Language is important; learning is facilitated when family members or peers examine together and are stimulated to converse by the objects and displays they encounter. Visitor studies research provides many illustrations that demonstrate the learning that comes from talk of all kinds. Schools have begun to recognize the importance of cooperative learning, museums have yet to fully exploit this powerful component of education. There are few exhibitions that require, or even encourage, conversation among visitors to fully interact with the material. Despite the fact that the vast majority of museum visitors come in groups, most exhibitions are still designed for the single visitor.

Constructivism suggests clear directions for museum exhibitions and pro-

grams. It points towards interactive exhibitions which encourage groups of visitors to generate their own meanings by providing a range of interpretations and novel ways to make connections, always acknowledging that visitors must be able to recognize something familiar to them in order to gain intellectual access.

¹ P. Gurewitsch, *New York Sunday Times*, 2 February 1995.

² D. L. Chandler, *Boston Globe*, 1 April 1996.

³ L. P. Steffe and J. Gale, *Constructivism and Education*, NJ: Erlbaum Associates, Hillsdale, 1995.

⁴ I have discussed this diagram in more detail in the Proceedings of the CECA Annual Meeting in Cuenca, Ecuador, October, 1994 (in press), and G. E. Hein, "The Constructivist Museum", *Journal for Education in Museums*, 16/1995, pp. 21-25.

⁵ L. C. McDermott, "Research on Conceptual Understanding in Physics", *Physics Today*, 37/1984, pp. 24-32.

⁶ P. Freire, *Pedagogy of the Oppressed*, Herder & Herder, New York 1970.

⁷ S. Akbar, "The Nehru Gallery national textile project", *Museums for Integration in a Multicultural Society*, Proceedings of the Annual CECA Conference, 1995. p. 88.

⁸ S. Rozé, "L'Europe des fleuves", N. Gesché (ed.) *European Museum Communication*, ICOM-CECA Regional meeting, Brussels, 1995.

⁹ K. Cederstand, "Zebra on Wheels; On Tour with the Mobile Museum in Botswana", *ICOM Education* 15/1995, pp. 15-15.

¹⁰ D. Horwich, "First and Second Chance to Learn, an oral history project", *ICOM Education* 14/1994, pp. 38-40.

Ateliers de peinture et reconstitutions d'époque : de l'utilité et de l'abus des ateliers au musée*

Michael Cassin

Head of Education

The National Galleries of Scotland

Edinburgh, U.K.

Summary

Many museums offer practical workshop sessions for children and adults. These are usually described as alternatives to the traditional "talking about a painting or an object in a gallery" type of museum visit. The popularity of workshops in recent years has to some extent shifted the balance: in some places they are now more traditional than gallery talks. The suggestion implicit in this way of thinking is that the latter kind of activity is somehow not as exciting or rewarding as the former. This is: a) debatable, and

b) surely an extremely alarming attitude for members of museum staff to hold let alone to promote. Maybe the time has come for a re-evaluation of museum workshop practice. Maybe the time has come for museums to get back to dealing directly with the real things in their collections which are, after all, the reasons for their existence.

Je déteste les ateliers. Je les ai toujours détestés. Je ne les aimais guère quand je devais les faire et je les hais encore plus aujourd'hui. Je crois que celui qui m'a le plus déplu est celui sur la peinture de paysage qui ne devait attirer que trois participants : une fillette de sept ans, un garçon de quatorze ans (venu avec sa toile pré-appâtée) et un chanteur de jazz quinquagénaire en vogue!

J'ai longtemps cru que ma haine résultait du désordre créé par de tels ateliers et du danger qu'ils constituaient. Je continuais néanmoins à les pratiquer, plus je crois pour répondre à l'attente du public que par la conviction de leur valeur éducative. A l'heure actuelle, je considère que mon rôle est de convaincre le public qu'il existe des alternatives à ces ateliers.

Les musées et les galeries d'art ont le grand avantage de posséder des collections d'objets et d'images que leur beauté, leur intérêt, leur côté ludique rendent plus qu'attrayants et stimulants. Ils offrent cette chance unique de pouvoir découvrir et explorer des œuvres originales. La spécificité de cette expérience face à face est tout aussi précieuse que la conservation même des collections.

Dans un musée d'art, l'approche des œuvres peut être multiple. Elles invi-

tent au regard, à la réflexion, à la discussion, au dessin, à la copie, à la ré-interprétation, etc. Chacune de ces approches a son utilité pour autant qu'elle ait lieu face aux objets et soit la plus directe possible.

Au début de ma carrière, j'ai utilisé ces différentes approches. J'avais carte blanche pour toutes mes activités, y compris les ateliers pratiques qui se déroulaient dans les salles mêmes du musée. Allier ainsi la pratique à la théorie s'avère très gratifiant. Par contre, le but recherché s'estompe nettement et les déviations sont aisées quand ces ateliers ont lieu loin des œuvres. Il nous est arrivé de nous laisser emporter par le côté ludique d'un atelier au point d'en oublier le lien avec l'œuvre du musée. Ce fut notamment le cas de l'atelier qui devait voir la réalisation de sculptures à base de nourriture, réalisées au soleil, au milieu du trafic et sous le regard des passants! Mais j'étais jeune à l'époque!

Aujourd'hui j'ai mûri, et la situation me tracasse. La précarité de nos ressources nous oblige à nous demander si ces ateliers sont vraiment bénéfiques. Est-ce que nous ne surestimons pas leur efficacité? Sont-ils véritablement plus rentables que toute autre forme d'activité muséale? Si l'atelier au milieu des œuvres peut à la rigueur se défendre, peut-il vraiment se justifier dans des locaux où des reproductions remplacent les œuvres originales? Quel bénéfice un musée peut-il retirer de cours d'art organisés loin des œuvres?

Confectionner, copier, réinterpréter ne sont que quelques uns des aspects de ces ateliers au musée. Un domaine qui me tracasse davantage est celui des ateliers où les œuvres peuvent être touchées et où le public est invité à se déguiser. Afin de rendre l'ensemble plus acceptable, ce type d'atelier est le plus souvent destiné aux enfants, qui sont invités à troquer leurs vêtements contre d'autres plus insolites ayant appartenu de près ou de loin à des personnes d'origines et d'époques différentes. Il arrive même que certains objets hors vitrine puissent être pris, caressés et touchés. Ces ateliers ne font en général pas appel à des œuvres originales ni à des œuvres de qualité, trop fragiles, précieuses, voire «spéciales». Au contraire, les costumes utilisés ne sont que des «reproductions» (Quand une reproduction cesse-t-elle d'être une reproduction? Quand elle est un trucage!), les objets font partie d'une collection «palpable» (Quand un objet est-il digne de pou-

voir être manipulé? Quand il fait partie d'une collection palpable) ou manquent de spécificité (En quoi un musée diffère-t-il de tout autre lieu? Par le fait qu'il contient des objets tout à fait spéciaux. Ceux-ci sont si peu spéciaux qu'ils peuvent être manipulés à loisir!)

J'aime bien sûr les déguisements et l'idée de dépaysement qui en découle: quelle curieuse impression quand on a l'habitude de porter des blue-jeans et des T-shirts de tout à coup revêtir des crinolines! Mais ces déguisements rendent-ils vraiment le passé plus présent comme d'aucuns voudraient l'affirmer? J'ai quelque doute à ce sujet. Comment le fait de porter pendant un court instant des vêtements reproduits, inodores et intacts peut-il nous aider à mieux comprendre la vie des femmes de pêcheurs de Newhaven en Ecosse vers 1840 telles qu'elles apparaissent sur les photos calotype de Hill & Adamson, voire saisir toutes les subtilités de ce type de photographie, et qui plus est, comprendre ce que ces images ont de commun en sensibilité, beauté, délicatesse, force, complexité visuelle et pouvoir émotif avec d'autres arts visuels?

Si tant est que le recours au déguisement permet de raviver le passé, pourquoi alors ne pas le faire sérieusement? Employons des pantalons en peau de chamois qui n'ont plus guère été lavés depuis des semaines, des mois, voire des années ou des corsets en os de baleine qui vous défoncent les côtes. Ajoutons aux reproductions des robes de ces femmes de Newhaven un peu d'eau de mer, des écailles de poisson, le tout agrémenté d'un peu de sueur humaine et de suie incrustée du XIX^e siècle; aspergeons nos orteils d'un peu de sable et d'autres matières innommables: alors seulement pourrions-nous peut-être un tant soit peu nous identifier à ces femmes.

Mais là aussi, abstenons-nous. Pourquoi ne pas tout simplement regarder la photo (le tableau, la peinture, l'objet)? Prenons le temps d'analyser l'œuvre authentique et consacrons lui le temps nécessaire afin d'en saisir toute la magie. Après tout, comme je l'ai déjà dit, ces œuvres font la particularité de nos institutions. Si nous sommes incapables de les utiliser pour évoquer le passé ou éveiller un quelconque sentiment artistique, c'est que nous faisons fausse route.

Je crois que beaucoup d'entre nous organisent des ateliers non pas à cause de leur succès, mais pour des raisons moins avouables qui sont l'habitude, la

réponse à une demande du public, et osons le dire, par manque d'imagination.

Ceci m'amène à un autre constat. Ce type d'atelier et le raisonnement qui en découle pourraient renforcer l'idée que certains collègues extérieurs à l'éducation se font de nos services éducatifs, à savoir qu'ils ne sont destinés qu'aux enfants, qu'ils se limitent à des ateliers où l'on se déguise, le tout le plus généralement loin des collections du musée. Ceci peut avoir des conséquences fâcheuses (voire inquiétantes) pour notre statut, notre place d'éducateurs au sein de l'institution muséale, voire des fonds qui nous sont alloués.

Il se pourrait que les ateliers aient eu leur heure de gloire. Est-ce que leur poursuite, avec ce que cela implique comme dépense de temps, d'énergie (d'argent et d'autres ressources), n'est pas simplement du temps consacré, non pas à essayer de faire revivre le passé pour le public, mais une manière de nous confiner nous-mêmes dans le passé?

* Cet article (traduction N. Gesché) a fait l'objet d'une communication en anglais lors de la conférence régionale européenne du CECA à Bruxelles, M. Cassin, «Painting classes, dressing-up and living in the past: utility of workshops in museums», *European Museum Communication* (N. Gesché, ed.), pp. 61-70. Le côté provocateur délibéré devait conduire à un débat passionné sur ce sujet controversé.

Do the Right Thing: Museums Need a More Varied Audience which Education Must Help to Achieve

Manus Brinkman

Director of the Nederlandse
Museumvereniging
Amsterdam, The Netherlands

Résumé

La conservation et la présentation sont les principales tâches d'un musée. Ce postulat peut toutefois être interprété de plusieurs manières. Des générations de conservateurs ont à grand peine rassemblé des objets, qu'ils se sont par la suite efforcés d'étudier et de classer selon les règles en vigueur. Ils les ont

le plus souvent présenté au public en trop grande quantité, et sans assez d'informations. Les étiquettes ne comprenaient généralement que quelques dates, le nom du fabricant ou l'éventuel lieu d'origine. Promouvoir une meilleure compréhension de l'objet pour le visiteur a rarement été prioritaire. Or, le musée est bien là pour le public. L'Association des musées néerlandais sert de lien entre les différents musées de mêmes spécialités et de mêmes fonctions, dans un même but de promotion auprès du public.

Preservation and presentation are the principal tasks of a museum. Everyone agrees on this, but there are many different ways of interpreting it. Generations of curators took great pains to collect objects and, if successful, to describe and store them according to the prevailing rules. They were also presented to the public, but such displays were usually long on quantity and short on information, i.e. a maximum of objects and a minimum of information: labeling rarely went beyond a few dates, the name of the makers, or the find spots. The idea of promoting better understanding or insight on the part of the visitor was seldom a priority.

Even nowadays one could point to countless examples of such an approach. Many modern art galleries and art museums for instance take it for granted that art should speak for itself. Often the only information they provide is a label with the name of the artist - unknown to many visitors - and the date of the work of art. Genuine enthusiasts can, of course, fall back on the information provided in the exhibition catalogue, but this is not cheap. And then there are the natural history museums, where row upon row of stuffed animals stare the confused visitor in the face. Even the old cliché line of arrow heads or earthenware pots is still with us.

Such museums do not take the transfer of knowledge and ideas very seriously; in fact, they are disdainful of education. Even where museums do have education officers, this is no guarantee that they will pursue an educational strategy. Education officers are often appointed by the museum director, whether from conviction or because of political pressure. But this does nothing to diminish the disdain displayed by curators. Education officers are allowed to organise marginal events, as long as they do not interfere with the substance of a presentation. Their salaries are lower than those of the curators and their presence is less often required at important in-house meetings.

Because the top priority in museums is collection and collection preservation, staff members directly concerned with preservation are regarded as having a right to determine the way the collection is presented. It was not until the 1970s that education was taken seriously and granted a definite place in museums, but many of those initial achievements have since been eroded. Nor can the educators themselves escape some of the blame for this: in their eagerness to join the museum elite they often developed a similar disdain for the visitors. And although their approach was more subtle - they masked their low opinion in ideological jargon - the results were the same: visitors were often just as baffled by the education projects as they had been by the cryptic language of the curators.

So far the battle is still going on, not only against the sacrosanct curators but also against the pedantry in the museums themselves. But time is on our side. The question "who owns the museums" is one that is being heard more and more often nowadays. Funding authorities are naturally disappointed to discover time and again that rising attendance figures are largely due to an increase in repeated visits by the loyal band of more highly educated people. More and more people are starting to ask why we need museums at all. And the museums can only answer that question satisfactorily by presenting a policy aimed at reaching as many people as possible. Central and local government should help to achieve this by granting museums the means to implement such a policy. If cultural heritage is to be made more accessible to a larger part of the population, education officers can make an essential contribution to this, not least by establishing good relations with schools. In the process, educators may well become the pilots safely steering museums past the cliffs and rocks of public skepticism (public indifference) into the open sea of wider public participation.

One of the most challenging tasks in relation to public participation is the multicultural society. In a regular school in the big cities of the Netherlands more often than not the percentage of "original" Dutch children is less than 50%. This means that a large part of the potential museum visitors consists of people with many different cultural backgrounds. Museums should realise that to be attractive to this visitor-group they have to offer them something: in the field of presentations (and not only temporary exhibitions or events), of

research, collecting, and last but not least, in the field of personnel management. The staff of a museum (including curators and directors) should in the long run also be a reasonable representation of the society a museum owes its existence to. After having led the museums over the open sea of public participation educators are in my opinion in the leading position to steer them into the safe multicultural harbour after the storms and waves of misunderstanding, prejudice and racism.

Fortunately an increasing number of museums are now taking education seriously, working from the premise that museums exist for the public and not vice versa. In the meanwhile, educational work has had the opportunity to develop in these museums, of which there are many commendable examples. Other museums can take their cue from these examples to improve their own situation and it is important to keep informed about their programmes and preferably to visit them and study their approach. It is not enough only to act from one's own national basis. Participation and the multicultural society are international phenomena. A group of Dutch museum directors made a study tour to the United Kingdom to discuss challenges in the field of access related to groups from several cultures. Besides thinking about theoretical concepts the visit gave them many concrete ideas which in the past year have been realised in each of their museums. For us this has been a good example of successful international exchange. Of course there are many other possibilities for international cooperation.

The exchange of ideas is of course also necessary at national level. Although there is exchange of information, it is often on a fairly ad hoc basis: colleagues drop in because they want to mount an exhibition on the same theme, a group of government-sponsored people makes a working visit abroad. It is preferable that the exchange of experience and the joint research and development should be conducted on a coordinated basis and this calls for some kind of umbrella organisation. This could be an association of fellow-educators perhaps, or a regional or national government. The best solution, however, is an independent national museums organisation, maintained by the museums, where colleagues can collaborate on a regular basis. The Netherlands has such an organisation in the form of the Netherlands Museums Association (Nederlandse Museumvereniging,

NMV). It is maintained by its members, the museums. These have recognised the need for an organisation capable of lobbying on their behalf in the political arena. Furthermore they consider it important that such an association helps to promote the professional expertise of their staff. National workshops, symposia, study tours, research, courses, and newsletters can serve to establish and maintain contact among museum staff. Like ICOM, the NMV has discipline-related committees, one of the largest being the education committee. The museums, as it were, pay the NMV to set up contacts among their respective specialist staff for the advancement of that speciality.

The NMV has developed a matrix structure with "vertical" and "horizontal" committees. The vertical committees promote contacts between all the museum officers in a particular kind of museum; the horizontal committees promote the contacts per discipline.

This structure makes it possible to organise specific activities, for instance for all education officers across the entire spectrum of museums. By the same token, art galleries (art museums) can organise activities for everyone working in art galleries (art museums), from registrars to educators. The committees often organise joint meetings. For instance, the education committee may get together with the PR committee to discuss their common tasks: "communicating with the visitor".

The education committee is the largest section, and not without reason. The NMV believes that education is one of the most important elements of the museum's presentation task. The education committee tries to add a surplus value to the education activities of the individual museums.

Let me discuss a few of them.

1. Peer review of exhibitions, whereby a museum agrees to be visited by a group of colleagues. Members of the education committee can enroll to visit a particular exhibition; their task is to view it critically and to say what they think about it. This can turn out to be pleasant or painful for the exhibition maker, but the ultimate purpose of such assessment visits is to raise the overall level of museums (museum presentation).

2. Well-prepared study tours (most recently to the United Kingdom and the USA). Apart from the confrontation with other ways of doing things, an impor-

tant spin-off of such a tour is that for a period of ten days some thirty or forty colleagues continuously discuss the theory and practice of their work. On each occasion the contacts made during the tour have formed the basis of a network of participants, who have gone on to organise joint projects, visit one another, or undertake joint research.

3. Open information days, for instance about innovations in education as such.

4. National debates on interesting issues. The NMV organised, for instance, two big national debates on participation and the multicultural society, and issued two books about the theme.

5. Political lobbying. Several times the NMV put the multicultural society high on the agenda of politicians.

6. Membership of a larger organisation serves to strengthen the voice of each individual committee. I know, for instance, that the education committee continually raises the matter of public participation with the NMV. This is not a bad thing, because it makes people sit up and take notice.

And should the educator turn out to be the pilot, one had better listen carefully!

Advanced Studies in Museum Studies at the Federal Academy

Andreas Grünewaldt-Steiger
Head of the Department
for Museum Studies
Wolfenbüttel, Germany

Résumé

L'Académie fédérale d'études culturelles de Wolfenbüttel a notamment pour tâche d'assurer l'éducation permanente en matière de pédagogie muséale. Chaque année une série de séminaires consacrés à l'éducation dans les musées est offerte à tous les éducateurs de musée, leur donnant ainsi l'occasion de parfaire leurs connaissances - acquises le plus souvent sur le tas, étant donné le manque d'institutions spécialisées en pédagogie muséale.

The problem is well known. Until now, no university has yet ventured to set up a course in "Museum

Pedagogics". Apart from small attempts within the established departments of classical basic museum sciences, and pilot projects within new museum studies courses, there is no universally recognised curriculum. Why, then, a course in museum pedagogics at the Federal Academy for cultural studies?

In a paper dated October 84 on the "Explanation of the concept with regard to content" of the work of the Academy, we find under the subheading "Museum" the following: *With the aid of the methods of museum pedagogics, an attempt is being made, in the best way possible, to make the exhibits accessible to the visitors and help them to understand them in their greater context*, and further: *The pedagogical aspect of the museum guide's presentation exerts a direct influence on the development of the museum's visitor-attendance figures*. These two quotations seem to be symptomatic of the "invention" of our new fifth department at the Academy. Although in the Federal Republic of Germany the discussion on the requirements and contents of museum pedagogics has been going on for over two decades now, and the museum as an institution has become distinctly more visitor friendly, a certain amount of uneasiness has obviously remained concerning the forms and methods of approach of many museums towards their educational mission. Exaggerating, the reasoning could be formulated as follows: when a presentation is made in a museum, it is as a rule not understood by the visitors. Only a museum educator is in a position to transform the educational content of an exhibition into questions which will guide the visitors along the path to knowledge. Once this has been achieved, assuming that the museum educator has correctly understood his assigned task, the museum will enjoy a success which will show up in visitor-attendance statistics. The museum will then have at its disposal an impressive means of legitimising its claim to funding from the EC, federal and municipal budgets for the coming year.

Although the way of looking at things pointedly described above - and which were prevalent in the early 1980s - was of no significance for museum pedagogics from the content point of view, it had a certain influence on its manifestations which was all the more clearly in evidence.

Whether it be that in many places this type of argumentation was successfully used to win the politicians' sup-

port for the setting-up of new posts for museum educators (sometimes within the scheme of the Labour Exchange's job creation programme), or that the established museologists gradually came to recognise their colleagues in education as equals and to seek and offer the necessary co-operation at an ever-increasing degree, this resulted in the creation of practical advanced courses in museum pedagogics. Groups were formed, such as the regional museum education working groups and their supra-regional, the Bundesverband Museumspädagogik, which, thanks to public funding, offers practical courses for further qualification. Among the participating institutions let us mention the Reinwardt Academy from the Netherlands, the Working Group for Theoretical and Applied Museology in Vienna, and of course, our own institution.

The Department of Museum Studies finds itself in a line of development which has not necessarily been sustained by the conviction that museum education is a recognised special branch of museum science. The lack of reflection described above places the Federal Academy in a paradoxical situation. It must, on one side, be open to a determined heterogeneous public coming from the most varied fields of education and study; on the other hand, the offer is limited to the so-called multipliers, i.e. the colleagues who are already equipped with a basic knowledge of museum education (whatever it may be). If the Academy sees itself mainly as an institution for advanced studies, it also becomes, due to its exposed position on the museum education scene, a place where compensation must be made for the deficits in university curricula. Although our department cannot replace the university, it can lead to some quite interesting developments which link both theoretical education and practice.

Advanced Studies in Museum Education: the Theory of the Practice

In 1991, a new head was assigned to the Department of Museum Education and among the seminars offered that year let us mention "Methodology of conducting guided tours", "Marketing for museum educators". A seminar was also organised on "Cultural tourism". However, the primary function of these encounters was mainly to qualitatively re-establish the presence of museum educators on the museum scene.

If museum education can be considered as one of the most important

tasks with which museums are faced, there is however an ever greater risk of the education departments being forced into a secondary role by the appointment of non-professional museum educators. The present state of museum education as a relatively young science with an unstructured theoretical superstructure and divergent methodological systematics, adds to this situation. Therefore, the Federal Academy intends to open its seminars, through an interdisciplinary working method, to people in other areas of museum work, i.e. scientists in special topics, architects, draughtsmen, authors, journalists, university professors, etc., conveying and elucidating at the same time the pretensions of museum education.

The Department has no interest in single-handed tasks. It must be an open forum where colleagues from the museum field and professional associations like the Bundesverband Museumpädagogik, CECA, the German national museum committee and other regional associations, are animated to an intensive exchange of ideas. This role as a centre of advanced studies and exchange of experience is particularly clear about taking into consideration the co-operation with the new federal states from the former German Democratic Republic. The department does not regard itself as a vehicle of a universally recognised theory of museum education, but rather as a "forum" where the focus is set on the possibility of public and expert discussion based on infrastructure and content. In this way, critical reflection and continual review of educational pretensions become possible.

An additional task is to collect and make available museum publications and other literature, which is often difficult to obtain. Fundamental research is another supplementary work area which must be regarded as an indispensable component of qualified advanced studies. It is the basis for possible analysis and evaluation work in museum practice. In this context, the most important form is the surveying of "grey literature" and the compilation and documentation of museum education practical models.

The education programme offered in 1996 is divided into the following categories:

1. Courses with practice:
 - Exhibition design and museum education
 - Project management
 - Text in museums

- Music in/for museums
- Methods of conducting guided tours
- 2. Meetings: The theory of the practice:
 - Change of venue: Two museums, two settings? The Sprengel Museum in Hannover and the Arts museum in Wolfsburg
 - Children's Museums: Phantom or practice?
 - Personal mediation
- 3. Symposia and colloquia on museum theory:
 - The Open museum
 - Museum philosophy: The Metropolitan Museum/the Cloisters, New York
- 4. Courses on different aspects of museum work:
 - Museum organisation
 - Financial strategy
 - Public relations
 - Methods of moderation
- 5. Forums:
 - Projects for museum educators in cultural historical museums
 - Expert conversation: Cultural adult education

This year, the programme has been considerably extended with the introduction of further education and qualification. The Bundesverband Museumpädagogik and the German Museum association, together with the financial aid and support of the Robert-Bosch Foundation, have been able to provide a programme pack which will enable students to acquire further education certificates.

New Technology and its Implications for Educational Work

Alison M. Heath

Curator and Educator
South Godstone, United Kingdom

Résumé

Ordinateurs, Internet et World Wide Web, bases de données électroniques, multimédia, réalité virtuelle : véritable panacée pour certains éducateurs de musée, mais sujet de méfiance pour la majorité, quand ces nouvelles technologies ne sont pas totalement ignorées. Il est pourtant évident que les possibilités offertes sont multiples : elles permettront aux éducateurs de développer des programmes et projets excitants, longtemps

considérés du domaine du rêve. La technologie n'en est qu'à ses débuts et les programmes au stade expérimental. Ils requièrent d'importants moyens, et exigent par conséquent un regard attentif de la part des musées afin de ne pas se laisser séduire par des produits qui offriraient l'impossible.

Computers, the Internet and the World Wide Web, electronic databases, multimedia and Virtual Reality seen by some museum educators as a panacea, are totally ignored by others and are certainly regarded with deep suspicion by many. It is clear that they offer interesting solutions to many projects that are already held dear, but they will also enable museum educators to develop exciting new schemes and programmes that they have never dreamed were possible. As yet the technology is still in its infancy and much of the software (programmes) and the hardware (machinery) are only in a developmental stage. Because it is still a very expensive tool, museums must be careful not to be seduced by the dreams of developers into thinking that more is possible than has yet been achieved.

There are five main areas that appear to be the most exciting for museum educators, so far... They are: extended multimedia electronic databases, the new possibilities for the scientific study of artefacts, the use of "do-it-yourself" multimedia for teaching, the potential of the Internet for communication and the exchange of information and the use of Virtual Reality to create and recreate objects, places and worlds. These are the areas that will be discussed in this article.

Any museum that has more than a few hundred objects will benefit from the creation of an electronic database to inventory, accession, research and document that collection. Such a database can provide an exciting route to further accessibility to the collection for educators. It can lead to carefully researched and tailored groups of objects being made available to answer specific educational requirements. Museum educators do not necessarily need access to vast quantities of similar or nearly identical items but need to be able to select objects that are relevant to their particular carefully planned and specified topic. These items need to be fully researched and documented. The multimedia database offers the opportunity for the provision of text, images of the object and of related objects, sound archive, even video material

and references for further study. Material can constantly be added and amended; much of this research may be relevant to whole groups of similar objects in a collection. All this information can be cross-referenced so that it can be made accessible to the student as he or she pursues individual lines of research.

Curators and conservators now make use of a wide range of scientific equipment and skills to study the objects in their collections. It is possible to model three-dimensional computer images of objects, that can be turned, moved, changed in colour, lit from different angles and generally manipulated so that they can be studied in minute detail without the object itself ever being touched (and by using a virtual reality helmet and gloves the object actually appears to be "in your hands" to be turned and weighed as the real thing). It is possible to take a digital image of a painting and remove all colour so that brush strokes can be studied, elements of the picture can be moved and duplicated, in fact the whole image can be manipulated to study composition and construction, ceramics can be studied in the same ways, and by searching databases for similar forms, decorative motifs or materials, the possibilities are legion.

In America a nature reserve has been completely equipped with every scientific measuring and recording device; the site may only be visited by screen and keyboard but readings may be taken of temperature, rainfall, weather conditions etc., cameras can be moved and focused by the visitor to see and study whatever interests them... The visitors certainly do not have to move from their armchair and it is, of course, far less invasive of the actual nature reserve than allowing the trampling of human visitors.

There are two main areas of Virtual Reality that are relevant to museum educators; one has already been mentioned above. The second is "fly-throughs" and "walk-throughs"; it is entirely possible to take a walk in Virtual Reality through an historic building which has been reconstructed, decorated and furnished - even peopled - in different periods of its history. Works of art, furniture and furnishings may be seen in their original locations. Computer images can be manipulated to allow the visitor to walk into a painting and view it from completely different perspectives. Satellite imaging and archaeologist-drawn maps and plans allow the three-dimensional

reconstruction of archaeological sites in great detail with considerable accuracy. The satellite images allow exploration of geological features, weather patterns and pollution.

Materials may be drawn from a variety of sources for study and comparison. Many museums, archives and libraries are now making their databases, of images and multimedia information about their collections, widely available through CD-ROM, cable and the Internet. Through these means it will be possible to collect images of paintings or sculpture, pottery forms and designs, examples of insects, pieces of machinery, samples of weaving or minerals from across the world in a few moments. These images can then be used, manipulated and printed out by the individual student for their study purposes. The potential to do this is already there but the provision of electronic access is partial to say the least, and full coverage will remain a dream at least until the next century. The problem of copyright is also inherent in all these activities and much work is being done to find fair and workable solutions to these issues. It is clear that where most museums and libraries would be very happy to see their images being drawn upon and used freely by schoolchildren for their projects they would be less than delighted to find that a commercial publisher was making use of that same free access for purposes of publication. Simple means are available to require different groups to pay at varying rates for the use they make of such material, and discussions are underway in Europe and America as to the structures that need to be put in place.

All this information that is and will become available "on-line" can be downloaded and used to create multimedia guides to galleries, exhibitions, natural and archaeological sites and historic buildings. The material can be supplemented by in-house interpretation and additions through which visitors can navigate following their own specific interests. Learning by doing is so much more effective and many schools and colleges are making use of these new facilities to create their own projects, multimedia presentations instead of written essays on given topics. In many European countries there are national competitions, for schools' multimedia presentations. In Italy a prize is offered to students of art history and architecture for the best multi-media guides to historic buildings and collections. This will be extended through the Esprit

Programme of the European Community to cover the whole of Europe in the next few years.

This may all seem a long way away, but in England alone one third of primary schools already have access to CD-ROM technology, which means that an even higher proportion of secondary schools have the necessary equipment, and six thousand schools already have access to the Internet. The availability of such facilities is spreading rapidly throughout the world. In certain schools every child in the class has designed and maintains his or her own "home page" on the Internet. The Dalton School in New York is a pioneer in this field. Via video-conferencing, the World Wide Web, News Groups and E-mail, children in the classroom will "visit" and interrogate collections and curators on the other side of the world, all for the price of a local phone call. Specialists on another continent participate in research into a particular object or collection, and Museum Educators can join their own discussion group, MUSCUM-ED (to subscribe email LISTPROC@MTN.ORG).

However museums should be aware that approximately 80% of all Internet users are male, under thirty and white. This dominance is quite easily understood given the age group and the availability of disposable income. The male - female split appears to result from the fact that girls will only use new technology if it will answer their questions quickly and easily, whereas boys will continue to manipulate the machinery for the fun of the process.

However, when museums are offered the possibility of making their collections more widely available and accessible, many are concerned that if people can visit their collections in Virtual Reality they will no longer wish to visit for themselves. Research appears to be proving the reverse, that having seen a gallery or an object in Virtual Reality people want to see the real thing for themselves. Professor Paolo Galluzi, Director of the Museum of the History of Science in Florence [<http://galileo.imss.firenze.it>] reports that in 1995 whilst most museums in Florence experienced a decrease of 8-14% in visitor figures, his museum saw an increase of 45%.

There are already some six hundred museums listed in the Virtual Library of Museums [<http://www.comlab.x.ac.uk/archive/other/museums.html>] and it receives 1,500 browsers each day. Nicholas Pioch's Webmuseum in

France [<http://mistrall.enst.fr>] has 200,000 visitors per week whilst the Exploratorium in San Francisco [<http://www.exploratorium.edu>] receives half a million visitors of whom about a third are outside the USA.

But moving forwards, scientists are developing complete “communication systems”, that will be possible to “strap on” each morning just as one wears a wrist-watch or even a shirt. A keyboard will no longer be necessary, the equipment will have voice recognition, and instead of a screen the information will be projected directly onto the cornea; imagine what we could achieve with this for our visitors...

U. Eco, *Travels in Hyperreality*, Secker & Warburg, 1986 (ISBN 0 350 29667 1)

N. Negroponte, *Being Digital*, Hodder & Stoughton, 1995 (ISBN 0 340 64950 5)

A. Fahy & W. Dudbury (eds.), *Information: the Hidden Resource, Museums and the Internet*, The Museum Documentation Association, 1996 (ISBN 0 905965 96 2)

A Supplement of VR News, *Virtual Heritage '95*, Vol. 5 Issue 1, Jan/Feb 1996 (ISSN 1 360 3485)

The Journal of Conservation and Museum Studies [<http://www.ucl.ac.uk/archaeology/conservation/jcms/>].

Skoletjenesten, an Education Centre in Copenhagen. New Challenges towards year 2000

Poul Vestergaard

Head of Education
Skoletjenesten, Copenhagen

Résumé

Les activités éducatives des musées de Copenhague sont gérées par un centre éducatif. Celui-ci a pour tâche de coordonner les visites et animations dans les différents musées, et de veiller à la qualité des programmes offerts. La participation active des enfants est l'une de ses priorités. Le succès que connaît le centre n'empêche toutefois pas les responsables de se tourner vers le futur, et de prévoir de nouvelles lignes de conduite pour les années à venir.

It is just before 10 a.m. The sun is shining after a period of cloudy and rainy weather. A school class from the suburbs of Copenhagen is waiting in front

of the entrance to the National Museum together with other school classes from different parts of the region. The sound level tends to be noisy; some are talking, others are pushing each other for fun. Most of them are looking forward to the visit, but some do not seem to care. They just have to be there: it would be nicer to enjoy the good weather on a day off.

Inside, in the education room designed as a Viking age landscape with tent, workshops, a copy of a Viking ship, copies of tools and painted wings, each schoolchild gets a real Viking age name and dresses in Viking clothes (copies based on information from original finds from the period). Slowly, the mood changes: the pupils are getting a new identity and begin to act as if they were living in the Viking age. Soon, some are working enthusiastically in different groups of workshop activities making silver strings and leather purses. Others are engaged in trade or cooking. They are all engaged in a role play focused on dramatising the past. Of course, visiting the Viking section of the museum is a vital part of the programme. By the end of the session it is difficult to leave the new roles. Surprised, the pupils do not find it easy to return to ordinary life - although the sun is still shining...

The educational programme is created by using basic pedagogical methods and means. The museum visit no doubt gives the pupils a good experience and a better understanding of Viking age living conditions by allowing them to be active and creative themselves and by having a parallel dialogue with the museum educator(s). Basic elements of the Viking age living conditions have been visualised, and the pupils have had to discuss and find solutions on many different matters. Without a doubt, they see and study the exhibition quite differently after having played “Vikings”... By playing the role of a fictive story at the museum, a fruitful experience complements work at school. The museum visit has given the pupils an extraordinary experience and new motivation to continue to explore the Vikings back in school. Individual experiences and new information gained through first-hand experience becomes a new field of knowledge or even understanding.

That same morning students visit The Viking Ship Museum in Roskilde. They take part in a day's programme combining workshop activities on land related to the maritime life and work

of the Vikings with sailing “Viking ships” on Roskilde fjord to get first-hand experience and a closer understanding of the Viking ships. In the Historical-Archaeological Research Centre in Lejre, a Viking market-place is being reconstructed to enable pupils and students to act in an authentic environment on day-visits or week programmes. Without doubt, the Vikings are still playing an important role in Denmark today.

The above examples of programmes on the Vikings are not imaginary stories or unique examples of educational successes. Similar activities take place at many different museums and institutions on that same morning. Since the beginning of the 1970s, Skoletjenesten (The Education Centre) has created educational activities in close co-operation with museums and cultural institutions in the Copenhagen area. It was established by the educational and cultural authorities in Copenhagen and the surrounding counties (amter). The basic financing of it is granted by the counties. Most of the budget is dedicated to wages - primarily to engage our staff of museum educators. A certain amount is dedicated to developing and running the activities at the museums and institutions involved, and some is spent on common facilities (e.g. graphic department) and administrative costs. But essential to the spirit of co-operation in Skoletjenesten, the running of the educational services is basically paid by the museums and institutions. Income from fees on activities, books, outside funding of projects and short term activities are also essential elements of the financing.

The educational staff working at the individual museums and institutions is responsible for the development and running of educational services, training and supervision of educators, production of printed education and information material, administrative matters (e.g. booking), etc. The museums and institutions providing education services in close co-operation with Skoletjenesten represent different categories and fields: natural history is represented by The Copenhagen Zoo, The Zoological Museum and Denmark's Aquarium, cultural history by The National Museum, The Viking Ship Museum, The Historical-Archaeological Research Centre in Lejre, The National Historical Museum at Frederiksborg Castle, and Denmark's Technical Museum, and art by Louisiana - Museum of Modern Art, J.F. Willumsen's Museum, ARKEN -

Museum of Modern Art, together with The National Historical Museum at Frederiksborg Castle. Furthermore, Skoletjenesten co-operates on a project basis with many other museums, cultural institutions, and cultural projects (exhibitions, etc.) on educational activities. Co-operating with professional theatres has become a growing part of the work in the last few years. One of the advantages of Skoletjenesten is that it benefits from the close collaboration and exchange of experiences of the educational staff working within quite different fields. To enable this, meetings are arranged with presentation and discussion of educational activities, and study tours (even abroad) are organised and joint (interdisciplinary) projects are developed. The work of Skoletjenesten is co-ordinated via our common educational and administrative base in Copenhagen. Our graphic department is situated here, another advantage for our work.

Each year more than 300,000 pupils and students visit the museums and cultural institutions involved. About 100,000 of them take active part in the educational programmes offered by Skoletjenesten. The programmes vary in form, content and duration. During the last 20 years new methods and techniques have been developed. Mainly by adapting well-known pedagogical principles (methods and means) to museum education. But also by developing new methods parallel to the development in education in schools at different age levels.

All our programmes are based on the same principle: pupils and students take an active part in the programmes which are usually based on concrete experiences and activities. Through a dialogue with the accompanying museum educator, they gain further knowledge and understanding of the topic of the visit.

Over the last few decades, museum education in Denmark has been strengthened and so has Skoletjenesten. However, reaching the present level of acceptance and support is not the final aim. In fact, we have only reached a platform for further consolidation of our educational activities, a platform from which we can fight new challenges and cope with old challenges not yet overcome...

Within the last year, and as a logical consequence, we have discussed a plan of "Perspectives towards year 2000". It deals first of all with organisational and financial frames for the future development of Skoletjenesten. Evalua-

tion of "old" services and premises for establishing new activities are in focus. To make sure that the right priorities and directions are decided upon, essential elements and developments outside our institution have to be taken into account. The following challenges are those Skoletjenesten has to face in reality. They are key issues for the further professionalisation and development of our profession.

Fighting a paradox

Despite the fact that educational programmes in museums have increased in number and quality, the recognition of the effect and value of the hard and enthusiastic work done by museum educators is only recognised by a 'limited' group of people. To generalise, the paradox is that the high level of educational activities is not sufficiently visible to the public, or in public opinion. Probably because education has not got the same "high" status theatre, music, cinema or literature have... So, we must not only do good work to be accepted by our colleagues in education but to gain general recognition from the public.

Live parts of children's and young people's culture

Cultural activities for children and young people have rapidly grown in recent years. Competition for visitors is increasing not only within museum and cultural institutions and commercial enterprises but also from centres basically devoted to fun and entertain-

ment. It is our task as museum educators to help our young visitors to learn to be users and creators of culture. We have to involve children and young people in creating activities far more than we are used to doing.

Expectations for further development of museums

To fight for further development in museum education means fighting for a further change in attitudes regarding museums in general. Museums can no longer be considered dusty and boring. Many have become aware of their role of public service. Museums have thus become a vital part of today's society. They should nevertheless be far more open to the public - more open to "dialogue". They are important resources, from an educational point of view. Further access to these resources through, e.g. new information technology might not just be a tool for providing information. It might also be a tool for a dialogue between museum education services and schools, regardless of geographic distances.

Courage to change old deeds and habits

Courage, perseverance and patience is still needed for advocating the needs of the education system within the museums to achieve optimal results. Museum educators must be ready and able to face the changes in acts and curricula. As new educational methods are used, museums are being asked for a variety of visits. Evaluation, revi-

sion and development of the offers are essential for the survival of our function. We must have the courage to abandon old materials and programmes, be aware of new educational methods and changes in education so as not to stagnate or be considered old-fashioned or out-of-date. Why not ask the children's opinion? Why not allow them to take some responsibility in their programmes? Let us not forget either the education of young people and even adults, which has to be given higher priority.

The challenges sketched above state how important and vital museum education is. However, we must still work on becoming indispensable.

Le «Zèbre sur roues», un musée en visite*

Tickey Pule
Senior Curator
National Museum
Gaborone, Botswana

Summary

Through its mobile museum called the "Zebra on wheels", the National Museum in Gaborone can take the museum message to the most remote parts of this sparsely populated country. It is also another way of bridging the cultural gap of the diversified nation of Botswana, and in the process, hopefully educating the community to appreciate and respect each other's cultures and traditions.

Lorsqu'en 1966, l'idée s'est fit jour d'établir un musée au Botswana, peu d'habitants comprenaient le sens du mot «musée», voire quelle en était la valeur. Le pays était encore jeune et pauvre. Aussi, les quelques personnes, qui avaient déjà visité un musée, vraisemblablement dans un pays voisin, ont soutenu cette initiative avec cœur et enthousiasme.

Les fondateurs de ce musée national ont été déterminés dès le début à créer un musée et une galerie d'art actifs, dont l'objectif principal était l'étude du peuple botswanais et de ses relations avec l'environnement. Conscients des distances immenses séparant la capitale Gaborone de la plupart des petits villages et de leurs habitants, ils se sont donc efforcés

d'élaborer leurs programmes en conséquence.

C'est ainsi qu'est né notre dynamique service hors-les-murs, constitué aujourd'hui d'un musée mobile, d'une publication trimestrielle «La Voix du Zèbre» et d'un programme radio hebdomadaire «La vie de notre musée». A l'origine, et en raison de sa situation géographique, le musée n'a touché que la ville de Gaborone. Au fur et à mesure de son extension, il a étendu ses tentacules dans un rayon de 80 km. Le personnel du musée a donné des conférences dans les écoles des environs, et celles-ci sont par la suite venues visiter le musée. L'éducation a très vite occupé une place prépondérante dans notre musée.

Au fil des ans il est devenu évident qu'il nous fallait toucher une plus grande partie de la population du pays. Le musée ne disposait guère de moyens ni de personnel suffisants pour établir des dépendances dans les différentes régions. Alors pourquoi pas un musée mobile? L'UNICEF avait mis à la disposition du Ministère de l'Éducation des fonds pour le développement de programmes éducatifs. Comme le Ministère n'avait pas de projet précis, il s'est tourné vers le musée. C'est ainsi que le service du musée mobile, communément appelé «le Zèbre sur roues» a vu le jour. Les fonds de l'UNICEF ont servi à l'acquisition d'un véhicule, de matériel cinéma et de projection de diapositives, ainsi que d'un générateur. Le musée a préparé une série de conférences, et a élaboré du matériel auxiliaire d'éducation tel que des panneaux didactiques, des diapositives des objets du musée et une série de films.

A ses débuts, en 1980, le musée mobile n'en était qu'à un stade expérimental. Il se déplaçait dans un rayon de 60 km. Nous étions bien conscients que notre service n'était pas destiné aux seules écoles des «environs». Notre objectif était plus ambitieux : nous devions toucher les régions les plus éloignées. C'est ce que nous sommes parvenus à réaliser par la suite.

À présent, nous commençons par contacter les écoles et les informons des préparatifs préalables à la visite. Notre programme requiert généralement toute une journée. Pendant ce temps, les cours normaux sont suspendus : en effet, nous commençons à 8 h. pour terminer à 21h30! Les enfants, divisés par âge, sont confrontés à de nouvelles matières et doivent prendre des notes. Ils ont l'occasion de voir des films et des diapositives, de toucher, de sentir et d'utiliser différents objets ethnographiques traditionnels provenant de groupes ethniques du Botswana. La communauté villageoise tout entière participe ensuite à l'événement au cours de danses ou pendant l'heure du conte.

En fin de journée, tout le village assiste à la projection de films sur le mur extérieur de l'école. Cette apothéose est très populaire, et il nous est arrivé de voir 4.000 personnes assister au spectacle. Avant le début de la projection et pendant l'entracte, nous expliquons à la population par l'intermédiaire de haut-parleurs, ce que sont notre musée et ses activités, sa valeur pour le pays et l'importance de préserver tout ce qui reste de notre culture en voie de disparition. Le lendemain toute notre équipe prend la route pour la prochaine étape afin de recommencer le même programme dans une autre école. Travail excitant mais exténuant!

Nous essayons ainsi de rassembler tout le pays sous la coupe du musée. Grâce au musée mobile nous pouvons conduire le musée vers les régions les plus délaissées de ce pays si peu peuplé. C'est également une autre manière de jeter un pont entre les différentes entités culturelles de notre nation si diversifiée. Nous espérons de la sorte réussir à éduquer nos compatriotes à s'apprécier et à respecter les cultures et traditions de leurs voisins.

* Le «Zèbre sur roues» ayant fait l'objet de nombreuses publications en anglais, nous avons jugé utile d'en publier ici une version française (traduction : N. Gesché)

Heritage Education: Building the Road through Walking...

Maria de Lourdes Parreiras Horta
Museologist,
Director of the Imperial Museum
Petropolis, Brazil.

Résumé

Le but de l'éducation muséale est d'apprendre au public, quel qu'il soit, à «lire le monde», à rêver, à trouver sa place dans la société afin de pouvoir appréhender les collections des musées de manière enrichissante. On ne peut considérer les musées comme de simples banques de données, où il suffirait d'appuyer sur un bouton «enter» pour tout découvrir.

Sensibiliser le public à la valeur de son patrimoine est l'une des tâches essentielles d'un musée, et l'auteur explique ici le chemin parcouru depuis sa participation à un séminaire sur le patrimoine en Grande Bretagne, jusqu'à son application au Brésil : faire découvrir aux habitants d'un petit village, la valeur de leur passé et de leur héritage culturel, naturel et social.

The road of museum and heritage education in Brazil is being paved through the many steps and efforts by different people and professionals who believe in the potentialities and the transforming power of this "medium", in its effective results in changing reality, in the daily life and minds of individuals and communities.

The task of museum education has been seen for many years as a matter

of "transmitting information" in as correct a way as possible to students and teachers, in as far as they themselves would be able to control and pay attention to what we would say about what they would be able to "see". What should be done with all this information, after the visit or at school? This was neither our responsibility, nor should we have worried about it. People were not prepared to understand the "importance" of our collections... lack of background, lack of "education". Our "mission" was thus seen as a means of "fulfilling" these voids, in a sort of "banking education", in the words of Paulo Freire in his "Pedagogy of the Oppressed".

More recently on my way along the museum education road in Brazil, one "sign-post" deserves mentioning. This was my encounter with A. Heath, and the experiences in Heritage Education in England during a seminar held in Exeter in 1982. Much of this experience has been shared with other colleagues through a similar seminar held in Petropolis, in 1985, with the help of A. Heath and P. Redsell, when a first proposal of a specific methodology for museums and heritage education was formulated in our country. What findings have we made since then? How many miles have we walked from then on, in a country as wide as a continent, as rich in natural resources as it is in social inequalities and cultural pluralities?

Travel notes on the Museum site

When trying to summarize a few of my own "findings" and explorations in the museum field, the first thing to be noted - and this is not a "discovery of the wheel" - is how quickly and how far museums have changed, not through their own will but by being driven by the increasingly faster wheels of the world. Museology and museum institutions have opened themselves up to this world, remodeling their own visions about themselves, enlarging their concepts and re-structuring their ways of dealing with new social profiles and demands, with new governmental policies and the economic and technological trends of this turn of the century.

The second point is the fact that museums, as social institutions, cannot merely be seen as great data-banks, holding a wealth of pre-fabricated knowledge ready to be passed on to common mortals through specific technologies, scientific methods and

sophisticated hardware and software, as brilliant as these may seem. Will the existential and essential questions of the life and role of museums be solved as soon as they enter the INFO-WAY Formula? "You press ENTER, we do the rest", paraphrasing Kodak's portable camera advertising...

Rather than "channels", I would prefer to envision our institutions as "sites", to use the up-to-date "jargon", in the world wide web of cultural systems and equipment. A site, a whole "environment" of a very specific nature, which can be used and enjoyed by people in the most different ways, as a "cultural tool", or rather a "cultural machine", for the benefit of all, and mainly for community development.

The Museum's raw material

Objects, monuments and museums do not speak for themselves, they speak for us, instead of us, expressing in their silent language concepts, feelings and ideas we would like to say ourselves, but have no words. Because, if words were sufficient, books would do better. What we in fact have in the museum can be compared with Diderot's metaphor for the Encyclopedia: a "machine for making stockings". A whole process, into which you feed some "raw material", with "stockings" emerging at the end. What we feed into our museums at the beginning of the process is the "raw material" of culture, objects, documents, specimens, tools, stones, textiles, papers, and at the end what emerges are the "signs of culture", ready to be used in different ways, for different ends.

The little stones collected along the way of my experiences and experimentation lead me to believe that the uniqueness and richness of the educational work in this field was something very different from the mere transmission of information and knowledge about the objects and collections, about data and historical or scientific facts. It was much more an open space, or "site" of discovery on how the cultural machine works, on how complex cultural processes are, on how objects are the evidence of these processes, and how we can use the "museum machine" to better understand it all.

Museum education should thus not be a "teaching" process, but a "learning" process, an apprenticeship and experiment on how the "stockings", the "signs of culture" are produced, and

how they can be used to warm up our “feet” and minds. Museum education can only be a “communication process” taking place through the “museum medium”, and through the “mediating role” of museum professionals, museologists, curators, conservators, designers, educators... Our task would then be to help people learn how to use the “museum machine”, so that they could “read the world”, without the need of words. A true “cultural literacy” process, that would allow people to hold in their own hands the “power” and all the “knowledge” we have in ours, and to use them for their own benefit and interest.

First Problem: Form or Content?

Our first exploration of these ideas on museum and heritage education was too concerned with trying to find a proper “methodology” for our practice. The basic steps mirrored the English experience mentioned above: 1) observation of the “raw material”, in order to apprehend it through perception skills, with the aim of 'identifying' the 'object' of study; 2) registration of these perceptions through different expressive skills, textual description, drawing, photographing, modelling, etc., making possible the “recording” of the perceived thing in conscious memory; 3) extrapolation of the observation and registration processes, in order to “give meaning” to the object of study, through comparison, setting in context, deduction, inference, using all sorts of pedagogical resources, such as research, discussions, questioning and re-creation, dramatisation and imagination... The method seemed easy to apply, proved effective and enticing, and lead us miles away from the old patterns of boring 'classes' in galleries, or 'extra class' activities. We have worked with teachers, held workshops, given them the 'keys' for finding their own way throughout the Museum.

No problem with the method, no problem with the “content”... at my Museum, the Imperial Museum in the hills near Rio; the “content” had already been “given”, in a “classical” manner. But working with “lace stockings”, with gloves and fans, Crown jewels and precious wood, romantic paintings and golden carriages, seemed too good to be true, just a matter of care and wonder... The real problem came when there were no “stockings” to be valued, no precious wood nor glittering marbles... when you had nothing but potato fields...

Experimentation out-site: how much is a raw potato worth?

The true challenge to all my “stockings theory” in my museum education adventure came one day in 1989 when I was invited to go to a small town in the hills, in the southwest region of Brazil. A village of 2,000 souls, a little spot in terms of this country, where the National Heritage Institute had started to inventory the architectural remains of Italian immigration in this region. In fact, there were no monuments but simple stone churches, an old nuns' school, on the top of a chain of mountains covered with luxuriant native forests. Down the valleys, only potato fields, and a population getting older and older, the youngsters escaping to town, looking for a better perspective in life. The only economic activity was potato planting, in very primitive conditions, and a small production of wooden frames for housing construction. The reality I was confronted with there can only be described as “social amnesia” syndrome, as people did not want to talk about their past, did not want to remember what they took to be a history of failure. What can one do with “raw potatoes” and a lack of hope? The initiative and idealism of one man and his wife, the local Secretary of Culture Jose Itaquí, and Angelica Villagran, pushed ahead with a whole program on ways of recovering people's sense of identity and of self-esteem, development in which I had the chance to participate. A first workshop on heritage education was held at that time, with teachers as the “key”

persons for reaching children, their parents and grandparents. The methodology was the same as the one we had been working with at the museum. What about “content”, when there were no museums, no objects, no documents to look at? The only thing to do was to look at the roots they had planted throughout their history of settlement in the area. Starting with the potatoes - how did they plant them, where, with what tools, since when, why? And continuing with their cultural roots, from their ancestors, their Venetian dialect, their prayers and their chants, to the way they made “polenta”, the way they celebrated their feasts, marriages and births. Teachers started to understand how much they knew about themselves and their children, being part of the same history. The first “objects of study” were their own houses, and their “contents”. They started asking the children to ask their parents and grandparents about their memories, to bring to school what they could find. At the end of the first semester, an exhibition was put on with all the things found in the houses and fields. Grandparents and parents came to explain how these things worked, to recall stories from the old photographs they had kept... This experience has been transformed into a permanent program of heritage education developed by teachers in each school, and every semester a theme is chosen as the center of study: first, the house, then the working tools, the family documents, the means of transportation, the culinary traditions, the fauna, and the local flora. Thematic exhibitions circulate from

school to school at the end of each cycle of studies. After 4 years of regular and systematic programs, the project is installed in 9 surrounding districts (municipalities), and heritage education is the backbone for all the disciplines of the formal first-grade curricula. Language, history, geography, mathematics, social studies, all the subjects are studied with the tools of heritage education, or of what I would prefer to call "field museology", or "popular museology", a work, not a theory, a practice, not a philosophy, which, by using the "raw material" of local culture and reality, provides people with "stockings" that fit everyone's feet. Inside or outside museums, I believe this can be an example of how much our work may help in "empowering" people, in the words of Paulo Freire, so that they may build their own road with their own tools and knowledge. Heritage and museum education is a "medium" through which people can learn how to "read their own world", how to write their own dreams, how to value themselves and be proud of it.

Quelques considérations sur l'éducation dans les musées de sciences et techniques au Mexique

Yani Herreman,
Architecte

Membre du Conseil exécutif de l'ICOM

Summary

In Latin America, science and technology museums are rare. The "Universum" or Science and Technology Museum which opened in Mexico City only four years ago, can be considered as a pioneer: education and systematic evaluation and research have been its main aims from the very beginning. The results have so far proved very successful.

En Amérique latine, ces dix dernières années se sont caractérisées en matière économique par une pénétration technologique exagérée et un développement néo-libéral, qui se sont maintes fois avérés inadéquats.

Il est plus facile de reconnaître aujourd'hui la nécessité de créer un système scientifique, en accord avec les demandes de la région, qui essaie de faire face avec succès aux défis d'une compétence globale. Il faut donc compter avec une science au service de la connaissance, suffisamment forte pour servir également au développement économique et social.

La plupart des organismes gouvernementaux, responsables des programmes scientifiques et technologiques, favorisent la divulgation des connaissances comme moyen de renforcer leur développement. Ils essaient de mettre l'éducation scientifique et technologique à la portée de tous, et ont pour ce faire recours à différents moyens, parmi lesquels interviennent les musées. Ils visent ainsi à une prise de conscience du rôle de la science et de la technologie dans notre vie quotidienne, en ville ou à la campagne. On assiste ainsi, petit à petit, à la reconnaissance sociale et éducative de ces domaines jusque-là minimisés.

D'un point de vue idéologique, les désastres, dus à la surexploitation irrationnelle et à la mise en place de technologies erronées, ont désormais engendré des programmes de prise de conscience de la dégradation du patrimoine naturel. Des agences internationales comme le World Resources Institute (WRI), l'Union Internationale pour la Conservation de la Nature (UICN), et le Programme des Nations Unies pour le Milieu (PNUMA) ont élaboré d'ambitieux programmes de conservation du milieu, soulignant entre autres l'importance de la biodiversité et la nécessité d'accroître la connaissance et l'estime des valeurs. Les musées ont commencé à jouer un rôle de première importance dans ce contexte.

D'autre part, et compte tenu des précédentes considérations, il ne faut pas oublier la situation difficile dans laquelle se trouve l'éducation en Amérique latine. Force est de constater que les problèmes relevés en 1986 comme prioritaires - croissance démographique, insuffisance de l'éducation primaire, désertion et manque de préparation des professeurs¹ - n'ont guère changé en 1996. Les jeunes latino-américains responsables de la production, tant scientifique et technologique que politique et sociale, restent insuffisamment préparés. Quant à l'éventuelle relation du système scolaire avec les musées, elle est virtuellement inexistante. Les musées

d'Amérique latine, novateurs en matière d'éducation sociale et de prise de conscience du patrimoine (voir les nombreux musées communautaires, en Colombie, au Brésil et au Mexique), se sont jusqu'à présent tenus à l'écart des domaines scientifiques et techniques. Ainsi, au Pérou, ce patrimoine n'a été reconnu qu'en 1994, lors de la création du musée de l'Électricité. En dehors des musées traditionnels d'histoire naturelle, les musées de sciences et techniques étaient loin d'être ce qu'ils sont devenus. Le Mexique a joué un rôle pionnier dans ce sens avec le musée de l'électricité de la Commission nationale de l'électricité (1970) et le Centre culturel Alfa (1980).

Le but de cet article est d'examiner le rôle éducatif joué en Amérique latine par ces nouveaux musées de sciences et techniques, et leur relation avec les systèmes éducatifs scolaires, à partir d'un exemple concret : le musée des Sciences «Universum» de la ville de Mexico.

Signalons en premier lieu, que les programmes scolaires des écoles primaires sont imparfaits tant dans leur concept que dans leur contenu. Ceci est particulièrement frappant dans les matières scientifiques et techniques pour lesquelles les informations données sont désuètes, et n'établissent aucune relation² entre sciences et philosophie par exemple, ou sciences et histoire. Il n'est pas non plus question d'interdisciplinarité. D'autre part, les programmes du primaire sont mal structurés et manquent de cohérence³. L'apparition récente des musées de sciences et techniques est certainement liée de près ou de loin à ces lacunes du système scolaire, et au désir de trouver des solutions parallèles permettant d'y pallier, afin de donner à la population les moyens de mieux comprendre et utiliser ces disciplines.

Le développement scientifique a permis un certain nivellement social, voire une hausse du niveau de vie. Les apports de la science dans le domaine de l'industrie et de l'agriculture peuvent s'étendre au point de faire partie intégrante de notre vie quotidienne et de notre travail. Aussi, la recherche, et les produits de cette recherche, doivent être mis à la portée de tous, hommes de sciences et décideurs, mais aussi de l'utilisateur, c'est-à-dire de la communauté. Celle-ci, aussi hétérogène soit-elle, doit pouvoir profiter de cette information, la comprendre, l'intégrer dans ses propres champs de référence, et apprendre à

l'utiliser pour ses propres prises de décision.

C'est ainsi que le musée des Sciences «Universum» est né dans la ville de Mexico sous le patronage de l'Université nationale autonome de Mexico, dont la vocation a été dès l'origine éducative.

Ses objectifs sont :

1. Produire une culture «scientifique» pour l'ensemble de la population.
2. Susciter un intérêt pour la connaissance et la jouissance des sciences et techniques.
3. Susciter les vocations.
4. Eduquer la population dans les domaines des sciences et techniques.
5. Aider les écoles.
6. Promouvoir les notions de sciences et techniques comme appartenant à la culture et au patrimoine d'un peuple.
7. Faire participer le public au processus d'assimilation et d'utilisation des sciences et de leurs applications technologiques.
8. Être l'interlocuteur entre l'université et la population.
9. Offrir un moyen alternatif pour l'apprentissage et la compréhension des sciences et techniques.
10. Offrir une solution à l'utilisation du temps libre et des loisirs.
11. Stimuler le désir des étudiants et des anciens élèves de l'université de participer aux programmes éducatifs du musée.
12. Entreprendre une recherche systématique dans les domaines de la communication éducative, l'enseignement non formel et leur évaluation.

L'importance de ce dernier point demande quelques approfondissements : signalons que la recherche systématique n'est guère pratiquée dans les musées d'Amérique latine, ni dans la plupart d'autres pays, qu'ils soient ou non développés. De là l'insistance, dès l'ouverture du musée, sur ce point méthodologique important.

La recherche s'effectue à deux niveaux, et touche ainsi tous les secteurs. Un groupe de travail, chargé de la recherche en matière d'éducation non formelle, étudie les attitudes et l'impact cognitif dans les groupes de l'enseignement primaire et secondaire. Ainsi l'analyse des idées acquises en dehors de l'enseignement peut expliquer l'origine des barrières, qui empêchent la compréhension de la science contemporaine. Ces idées peuvent être reliées

afin de former des modèles plus ou moins structurés, qui se construisent à partir de l'expérience avec des milieux naturel et sociaux⁴.

Par ailleurs, un groupe travaille à temps plein à l'évaluation des expositions, étudie le comportement du public pendant la visite, et analyse l'impact produit.

Trois lignes de travail ont été dégagées:

1. Une étude quantitative analyse le caractère des objets, les attitudes envers les systèmes interactifs, et l'impact affectif du visiteur.
2. Une étude qualitative détermine l'impact produit par le musée sur le public, et observe - par le biais de l'expérience des visiteurs - dans quelle mesure ses objectifs ont été atteints. Les stratégies de transmission, la politique scientifique, le contenu scientifique des salles et l'expérience muséographique du public sont ici évalués.
3. Enfin, l'étude analytique interprète les résultats d'un point de vue social, c'est-à-dire ethnologique.

D'après Screven, ces évaluations sont formatives, car elles se font dans les expositions temporaires. L'organisation générale peut alors être modifiée en fonction des résultats. L'interprétation anthropologique des résultats présente un autre intérêt : *peu de centres ont des systèmes d'évaluation qui dépassent la simple addition statistique des visiteurs*². A l'Universum, la politique d'évaluation intégrale inclut un suivi tant dans les expositions temporaires et permanentes, que dans les ateliers, départements ou autres activités du musée.

Cette évaluation comprend également:

1. L'actualisation constante en fonction des désirs des visiteurs, afin d'éviter que les expositions ne perdent leur attrait.
2. L'actualisation du contenu en fonction du caractère scientifique du musée, qui rend nécessaire la mise à jour de l'information et de sa présentation.
3. L'impact du public pendant et après la visite.
4. L'impact à long terme, qui peut susciter une vocation ou permettre la restructuration des cours de sciences et des activités interdisciplinaires.

Ouvert au public il y a seulement quatre ans, l'Universum est un véritable succès : il reçoit de trois à huit mille visiteurs par jour. Il peut certes être amélioré, et n'est pas une œuvre achevée, cependant je suis convaincue que son succès relève principalement

des différents éléments émotionnels, à savoir les compromis et l'enthousiasme de son personnel académique, investi dans une recherche systématique.

¹Yani Herreman, «Museos y Educación en América Latina y Caribe», *Revista Latinoamericana de Estudios Educativos*, México D. F. 1987.

²Sara Gaspar, Cecilia López, «Los centros de ciencia ¿una alternativa para la divulgación científica?», *La Diversidad en la Divulgación de la Ciencia*, Memorias del II Congreso para la Divulgación de la Ciencia y la Técnica, Xalapa, Veracruz 1992.

³Felipe Tirado Segura, «Universum : Museo de las ciencias. ¿Comprender-aprender-divertir?», *La Divulgación Hoy*, Memorias del III Congreso Nacional de Divulgación de la Ciencia, Queretaro 1995.

⁴Elaine Reynoso, Enrique Fleiro, «Modelos Intuitivos sobre conceptos básicos de la astronomía y sus aplicaciones en la divulgación de la astronomía», *La Diversidad en la Divulgación de la Ciencia*, Memorias del II Congreso para la Divulgación de la Ciencia y la Técnica, Xalapa, Veracruz 1992.

Museums and Educating for Cultural Tolerance

Monica Leahy

Education Officer

Migration Museum

Adelaide, South Australia

Résumé

Comment aborder l'éducation muséale dans une société multiculturelle comme l'Australie? Le musée de l'émigration dans le sud du pays a tenté d'apporter une solution à cette question en créant des programmes éducatifs en collaboration avec l'Institut national de culture aborigène et l'école de Kurna Plains. Lors de leur visite au musée, les enfants sont placés dans le contexte de l'émigrant et découvrent ainsi l'impact de l'immigration sur les peuples aborigènes d'Australie méridionale. Ils apprennent aussi à respecter et à mieux tolérer les autres cultures.

As Australia has moved from assimilation through integration to multiculturalism as the predominant social policy, a new vision has had to be developed for education, and as a result, for museums. South Australia, which opened Australia's first urban Aboriginal school in 1986 and is the site of the National Aboriginal Cultural Institute (Tandanya) and the only Migration Museum in the country, has been at the forefront of these develop-

ments and bears close examination in terms of accommodating and promoting successful cultural pluralism.

Considering that Aboriginal people had few legal and human rights until the referendum of 1967, the educational outcomes for most Aboriginal students had often been spectacularly unsuccessful. The five year process for setting up Kurna Plains School recognised this and now runs an education programme that is inclusive of Aboriginal children's learning styles - including behaviour management. Students call their teachers by their first name or by the honorific Aunty or Uncle, and the classrooms operate very much on a family basis. What this valuing of culture has meant in real terms is pride in ethnicity and a higher average literacy level than the other children of their age from local schools.

Similarly, South Australia has maintained strong, intensive English as second language programmes in schools and the community. Children have the option of a full-time new arrivals programme for their first year as residents and later support in mainstream classes in schools; the amount depending on a combination of length of residency and need and often including second generation children of immigrant parents.

This cultural explosion in education and throughout the community has huge implications for museums and museum education in South Australia. At the Migration Museum we have chosen to follow several paths while making sure all serve one aim - using the past to teach cultural tolerance and pride in the now.

For instance, all student visitors are taught that everyone has a culture - be it ethnic, socio-economic or geographic in origin, which is important considering most Australians of British background seem to think that culture is something that "ethnics" have. On the other hand, many recent immigrants do not recognise any Australian culture - perhaps because it is so shrouded in the stereotypes of beer swilling, beach going and BBQ eating! The reality is that Australia does have a culture, as most English visitors would be able to tell you, but it is an umbrella culture, probably influenced by our climate and isolation, but quite identifiable. The difference is that alongside that culture are the countless cultures of the millions of immigrants who have made Australia home mostly since the end of World War Two.

Secondly, the teaching style in the museum (students have an hour-long fully taught programme) borrows heavily from that used at Kurna Plains School. Students are full participants in their learning and they are encouraged to value their own background, using their life experiences (however short) to place the museum's displays in a relevant context which is far more likely to stay with them. Several programmes place the child within the migration and settlement experience; dressing in period costume, handling tools and so on. For instance, in one programme about early settlement a child is given a nineteenth century bean slicer and a discussion ensues about which member of the family might have used it when it was new, what appliance it has been replaced by (the food processor), who uses the modern equivalent in their home and who works harder. This serves the purpose of making the programme relevant to the child, thus making it a more lasting experience. Of course it can be considerably more difficult to equal the experience of a Post World War Two displaced person or a Vietnamese refugee of the early 1980s, but we can and do put students through the selection procedures for entry to Australia at different times in our history.

As well as looking at immigration and settlement history, the Migration Museum, in collaboration with Tandanya National Aboriginal Culture Institute, the Botanical Gardens (Aboriginal plant use trail) and the South Australian Museum's Aboriginal Gallery, teaches about the impact of immigration and settlement on the Aboriginal peoples of South Australia.

The latest study puts the number of Aboriginal groups occupying what is now South Australia at fifty-five in pre-invasion times (the word "tribe" is not used as it denotes a pyramidal structure with a chief, whereas Aboriginal groups use a council of elders for decision making). Through deliberate action on the part of settlers and successive governments, these groups were dispossessed of their lands and sent to missions at the whim of bureaucrats and church leaders. Children were forcibly taken from their natural parents and given to white families to raise, or left in "orphanages" where they faced a bleak future.

By putting children metaphorically into the position of an Aboriginal group whose land is progressively taken (they are given a jigsaw puzzle to represent

land and the pieces are gradually confiscated), and whose numbers are decimated by introduced diseases, wife-stealing and child welfare policies, they get a real feel for the issues and we often find that by about ten minutes into the exercise the children are sitting on "their land" to prevent the education staff from being able to take it.

Of course, one of the real issues in this sort of education programme is that while you are building pride in heritage and achievements of one cultural group, you must also cater for the group who might be depicted as the oppressor, preventing them from carrying the guilt of generations past. When dealing with the controversy that can arise from discussions of culture, beliefs, rights and cultural imperialism there is the potential for visitors to feel excluded, singled out for blame, embarrassed because of feeling different from the majority and so on. There is no easy answer to this problem and the real challenge for museums, and indeed schools, in cultural plural countries such as Australia (and the United Kingdom) is to turn this to the advantage of the institution.

As a teacher, I maintained that education by worksheet was not doing the student any favours and was in fact limiting the extent of their learning. The success of the education programme at Kurna Plains School was an inspiration to the staff at the Migration Museum in this regard. While worksheets have their place in the institution that has no paid staff, creating a climate that encourages difference, values the rights of all to their opinions and promotes tolerance, almost requires a face-to-face setting. To this end, attendant staff at the Migration Museum have taken on the role of teachers within the Museum and have full input into potential programmes and how to use exhibits as well undertake four half-day training sessions per year in such issues as new curriculum and student behaviour management strategies. One real problem has been the growth of a neo-Nazi group in Adelaide and without the sensitive face-to-face contact that encourages the valuing of difference, these attitudes might go unchallenged.

Worksheets might be banned, but the Migration Museum does provide education resources to visiting teachers in the form of preparatory activities and follow-up activities which are developed within the national curriculum framework, and has just ventured into the provision of

resources specifically about cultural tolerance and racism. Although teachers/schools are usually asked to pay for the booklet on a cost recovery basis, it is provided free of charge to teachers whose classes have indicated during their visit that they are in greatest need of its advice.

Multiculturalism is a reality in Australia and we have among the world's strictest anti-discrimination laws to support it. It is therefore essential for educators of all types (including museum planners) to recognise their power and their responsibility in creating both cultural tolerance and harmony. The museum must design exhibits with this in mind, while looking for the most effective way of using the standing resource of the museum to complement and extend the curriculum as well find a methodology that is inclusive of all visitors.

A huge task, but not insurmountable. At the Migration Museum, we like to leave students with one thought - one that was given to me by one of my former students, a Cambodian refugee. The school was very tense racially and this boy stood in front of a class of potential hostiles and said, *"when you meet someone who is different from you, look first for what you might have in common. Then look at the differences, respect their rights to their opinions and enjoy the rest - especially if it's edible."*

Is it Possible to Build a Bridge Between Natural and Cultural History Museums?

Merethe Frøyland
Norwegian Museum Authority

Doris Jorde
University of Oslo Norway

Résumé

Comment concilier musées d'histoire naturelle et musées d'art et d'histoire afin de mieux informer le public sur nos valeurs culturelles, nos origines, notre évolution, en bref sur notre place dans la société et dans l'univers?

In a recent governmental report on the status of museums it is reported that *"of the 530 registered museums and collections (numbering about 800) there are only 26 museums with natural collections of which half are pure natural history museums. Many parts of the country lack such collections and one should aim towards more natural historical offerings. The Department of Culture recommends that natural history exhibits be established in existing cultural-historical museums"*.¹

In order to fulfil this proposal, natural history museums and cultural historical museums will need to collaborate in the planning of their exhibits. The Norwegian Museum Authority has taken on the responsibility of stimulating co-operation between natural history and art/historical museums so that the communication of information in the museum setting will transverse the traditional boundaries. The aim is to present topics and themes having both natural and historical perspectives. If the idea is good, the practice is not that easy. One of the main reasons of the difficulty is crossing over cultural boundaries that have been established within the museum community. Natural history museums and art/historical museums each have their own set of traditions that seem to prevent the implementation of holistic approaches to museum work in Norway.

The English physicist C. P. Snow² introduced in his writings the concept of "two cultures" which he characterised as scientific on the one hand and literary on the other. For him, there was a basic lack of understanding and communication between the two different cultures. The differences Snow experienced in England between the two cultures was indeed more extreme than what we find between the two museum cultures in Norway today. However, a difference does exist and at times we, too, can talk about these two different cultures. In Norway, the two cultures have their own organisation (Norwegian Museums of Art and Social History, and The Association of Natural History Museums of Norway), further exemplifying the lack of communication and co-operation.

If we take a closer look at the two different museum cultures, we find differences in the priorities and their related problems. Art/historical museums find it difficult to find time for research and give priority to collections and public communication, whereas Natural history museums are often connected to university and research. The

latter therefore often have problems in giving some priority to their public exhibits and communication.

Within the museum environment, the differences between the "two cultures" also have to do with our definition of museums within the context of "culture". Art and historical museums have always been defined as "cultural" within the Department of Culture, and because of this concept have flourished in Norway. It has often been the Cultural sector which has supported these museums, defined as part of cultural traditions in Norway. Natural history museums have not had the same access to cultural support. Indeed, many would even affirm that in Western societies science has been totally neglected as part of culture in the recent past. S. Sjøberg stated in a discussion on the place of science in our definition of culture that: *"Science is not considered a part of culture, and in many cases is even seen as opposite to culture. And when one talks about our cultural heritage, scientific thought and development are often not part of the picture"*. We can only hope that this situation is going to change.

Because the two different museum cultures do exist in Norway, it will take time and resources to engage both sides in developing and understanding each other. And as we all know, time is something we all lack in the museum environment. Tasks with short deadlines are often performed first, leaving little time for long-term planning and co-operation. The long academic tradition of cultural separation will continue because museums are not given the necessary conditions to favour integration and change. In Norway, attempts to integrate the two cultures under the same roof have not always been successful and one might wonder if the effort is worthwhile and meaningful for museums.

Why co-operation?

The desired outcome of co-operation between the two cultures by no means implies eliminating the traditions of both natural history and art/history. This isolation may have been responsible for the progress made within each of these traditions. Yet, to bridge the gap that exists today between science and "culture" is a worthwhile challenge.

There are other reasons for combining the two cultures in museum exhibitions beyond just placing them in the same physical space. Science and society have developed side by side

and cannot be separated historically. Both, hand in hand, have influenced each other's development, and this has to be kept in mind when presenting information to the public.

Science and society

At a typical folk museum there are many artifacts that were used in farms and homes in the past. They are displayed with no information whatsoever on how they were made, the materials they were made of, or even the livelihood of the population at the time, and the influence this had on culture. Art museums exhibit period paintings, often with no comment on the technology used, or the social conditions that may have led to its creation. And archeological exhibits which take us through the development of mankind give little information on the technological and scientific progress which made these artifacts possible.

Museums of art and history are not the only ones to experience this cultural separatism. Natural history museums often dismiss the existence of humans when showing plants, animals and rocks as if people did not exist. We are rarely introduced to the interaction between science and society, leaving the visitors with the impression that science is just a collection of things that can systematically lead to a body of facts. At a time when we, as members of society, are asked to take decisions in the fields of biotechnology, environment and biodiversity, we rarely see these topics being addressed in a natural history museum.

Bernal⁵ emphasised that science and technology have been the building blocks for society, past and present. It is only through a combination of the

social and natural sciences that satisfactory and progressive social control of social activities can be assured.

The combination of historical and scientific events can provide an understanding of the importance science and technology have had for the practical and cultural development of society. Finally, the presentation of historical events can also help us to understand how science and technology have developed, and the choice we have made of the use of our natural resources for better or for worse!

S. Sjøberg⁴ insists on the inclusion of science and technology (natural history) in our definition of culture: "(...) *for our culture and our existence, Newton, Bohr, Darwin and Einstein have meant more than Picasso and Grieg. Not just for material needs, for our general standard of living, but also for our understanding of our existence, for the forces and conditions we are confronted with, for the place of the planet earth in the universe, for man's place in the larger context - for our understanding of the universe.*"

A new generation of museums

Art, history, culture, science, technology... these are words we have used to describe the two cultures that exist within an academic separation of subjects. Museums have chosen to follow this academic trend of separatism. We believe that the time has come for museums to begin looking at the holistic approach to exhibits - one that places an emphasis on the visitor... The time is ripe to present exhibits with an attempt to tell their whole story and allow the visitor to be a part of the time period, to understand the different demands of the society and

the possibilities available. This can only lead to a better understanding of who we are and how we came to be.

Bridging the gap between the two cultures will only be possible when participants of both cultures see the importance of co-operation as meaningful and useful, both for the museum and the public. We hope the results of the museums which have tried and succeeded have proved to be beneficial and that they will be followed by others. The sum of the parts may indeed be greater than the whole!

¹ "Kultur i tiden" (Culture in our time), *St. meld.*, No. 61, 1991-92.

² C. P. Snow, *The Two Cultures and the Scientific Revolution*. London, Cambridge University Press, 1959.

³ J. D. Bernal, *Science in History*, C.A. Watts & Co. Ltd, 1954.

⁴ S. Sjøberg, "Kan det bygges bru mellom de to kulturere?" (Is it possible to build a bridge between the two cultures?), *Museumsnytt* N° 4, 1995.

Un nouveau musée des enfants à Hiélopolis*

Wafaa El-Saddik
Conseil suprême des Antiquités
Le Caire, Egypte

Summary

Although hordes of tourists invade museum galleries worldwide, the local population in Egypt and mainly schoolchildren know little about their past. This is why a new Children's Museum was created in a suburb of Cairo in 1988. There children can learn about their cultural, natural and social heritage, not only passively as in school but by active participation in different workshops.

Les touristes défilent en masse dans les musées du monde entier. Toutefois, en Égypte, les populations locales et surtout les enfants ont très peu accès à leur héritage culturel. Parmi les 40% d'enfants que compte la population égyptienne, seuls 2% visitent les musées. Sur 100 visiteurs, 97 sont des touristes et seulement 2,07% des enfants d'âge scolaire. Ceux qui entrent par hasard au musée, retiennent fréquemment peu de choses de leur visite étant donné le manque de formation de la plupart des enseignants et l'absence d'informations. Les responsables des musées, quant à eux, ne sem-

blent guère soucieux de rendre leurs collections accessibles aux enfants.

Les enfants ont pourtant besoin d'autre chose que de nourriture et de soins de santé pour parvenir à se situer dans notre monde en mouvement : il leur manque une nourriture spirituelle. Ces constatations invitent à la réflexion : qui est responsable de la dimension culturelle de l'éducation du jeune enfant? Quelle méthode choisir? Les écoles sont dépassées : 40% de la population égyptienne a moins de 15 ans, les locaux font défaut, et les mêmes cours doivent être dispensés plusieurs fois par jour de manière à toucher l'ensemble de la population scolaire. Lorsque les bâtiments scolaires sont agrandis, c'est au détriment des aires de jeux et de détente. Il existe certes de nombreux centres culturels pour enfants et adolescents, mais ceux-ci sont souvent peu satisfaisants en raison de l'absence de planification et de l'irrégularité des programmes offerts. Chaque centre a sa propre philosophie, sans aucun contact avec les autorités ministérielles.

Nouvel élan pour l'éducation muséale

Le musée des Enfants du Caire, fondé en 1988, offre une nouvelle approche. Basé sur les exemples du musée des Enfants de New York et sur quelques ateliers de musées allemands, il a été construit à Héliopolis grâce à des fonds internationaux. Les salles d'exposition de ce «musée d'Histoire naturelle» - tel est son nom officiel - s'étendent sur deux étages, et sont consacrées tant à la nature qu'à la culture égyptiennes : les différentes périodes de l'Histoire côtoient la faune, la flore,

la géologie et la minéralogie. La majeure partie du musée est consacrée au Nil, de sa source au delta méditerranéen. Son cours est illustré par des dioramas, des panneaux didactiques, des photos et des maquettes illustrant les chutes Victoria, la vie en Nubie, et les activités quotidiennes d'un village égyptien typique avec ses animaux et ses plantes. Une section illustre l'histoire de l'homme en Égypte, de l'âge de pierre aux époques coptes et islamiques, en passant par les périodes pharaoniques et gréco-romaines. Parmi les autres sujets traités on peut relever le désert et ses oasis, le Sinaï et la vie aux abords de la Mer Rouge. Une salle «découverte» est également en préparation. Il nous manque encore un jardin botanique dans le parc du musée qui permettra aux enfants d'expérimenter les techniques de culture. Nous prévoyons une section réservée à l'agriculture, où les enfants pourront étudier le fonctionnement des anciens moulins à eau ou de la roue hydraulique, et une autre sur les techniques artisanales traditionnelles comme la poterie et le tissage.

Nous ne souhaitons pas que les enfants soient des spectateurs passifs, et l'essentiel de notre démarche réside dans leur participation active.

* Article paru en allemand sous le titre «Kunst & Kultur zum Anfassen», dans *Dialog, Zeitschrift für internationale Weiterbildung und Zusammenarbeit*, 1/1994, pp.30-31 (traduction : N. Gesché)

Une fleur parmi les pavés. Comment la réalisation d'un projet éducatif a pu avoir raison de tous les obstacles.

Yvonne Letouzey
La Nature à l'école
Paris, France

Summary

Thanks to the enthusiasm of some volunteers, nature has been introduced into numerous French schools for the past 20 years. Museums have helped and supported this work but lack of funding and the retirement of the founder of the project have sadly led to its end.

Les «classes de nature», «classes de mer», «classes de neige en montagne» qui offrent aujourd'hui la possibilité aux jeunes citadins, frustrés de liberté et de nature, de découvrir durant quelques semaines un milieu nouveau, vivifiant et d'une infinie richesse, n'existaient pas encore en 1959.

À cette époque, le béton, l'asphalte, le trafic bruyant et polluant des voitures constituaient le seul lieu de vie, terne, stérile ou angoissant, de nombreux petits parisiens et banlieusards. C'est à leur intention que la Nature à l'École (association à but non lucratif)¹ a été créée, dans le but de :

- faire connaître et aimer la nature aux enfants de la ville
- stimuler leur curiosité, enrichir leur esprit, satisfaire leur besoin de beauté, leur besoin d'expression

Pour atteindre cet objectif, nous avons décidé de réunir une large collection (animaux naturalisés, insectes, disques, photos documentaires, notices, questionnaires, etc.) afin de constituer un véritable «musée d'Histoire naturelle adapté aux enfants âgés de 6 à 12 ans», destiné à pénétrer dans les écoles et dans les classes.

De sérieux obstacles ont très vite menacé de freiner ou d'entraver notre développement : la disposition d'un local, notre publicité, l'accroissement en nombre des spécimens d'histoire naturelle, et bien entendu, l'argent manquaient à la bonne marche d'une telle expérience.

À ses débuts, la Nature à l'École était hébergée à titre gratuit et temporaire dans une librairie. Le manque de place et la gêne occasionnée nous ont incité à solliciter du Directeur du Museum national d'histoire naturelle la disposition d'un local autonome. On nous a alors proposé un ancien salon éclairé par deux grandes fenêtres, situé au second étage d'un bâtiment du dix-huitième siècle où avaient résidé d'illustres savants. Malgré l'escalier usé et l'absence d'eau, l'offre nous a ravi. La pièce a été repeinte de couleurs claires et gaies, dotée d'un tableau d'affichage et d'étagères. Un laboratoire nous a prêté une grande table carrée à tiroirs, une vaste armoire montant jusqu'au plafond, deux fichiers métalliques juchés sur roulettes, ainsi que des chaises. Le libraire nous a cédé sa vieille Ronéo actionnée à la manivelle. Enfin, nous avons disposé de places de parking indispensables au transport en voiture du matériel encombrant.

Il n'était pas question d'accueillir dans cet espace restreint des groupes d'écoliers. Seuls les enseignants devaient y être reçus, conseillés, stimulés, et notre matériel, par leur entremise, devait profiter à un nombre illimité d'écoliers qui auraient, sur place, dans leur classe, le temps et les meilleures conditions pour l'observer et en tirer parti.

Persuader les directeurs et les maîtres d'écoles de la valeur et de l'utilité de notre organisme, les convaincre de sacrifier quelques heures de congé pour se rendre bénévolement à notre local afin d'y chercher ou d'y échanger du matériel, paraissait à première vue utopique.

Nous avons fait appel aux médias : des articles et des reportages sont parus dans des journaux et revues, des émissions télévisées, des interventions au cours des «Journées pédagogiques» ont eu lieu, réunissant les enseignants du cycle primaire, et enfin nous avons organisé des visites de nos expositions de travaux littéraires ou manuels réalisés par les écoliers inspirés par la nature. Les résultats ont été encourageants : en 1962 vingt-sept établissements scolaires étaient fidélisés. Ils étaient cinquante-et-un en 1967, et quatre-vingt-quatre en 1971.

Au cours de ses vingt années d'activité, la Nature à l'École a collaboré avec plus de quatre cents établissements pour enfants, scolaires pour la plupart, mais également médicalisés : hôpitaux pour enfants, institutions pour jeunes myopathes, pour jeunes trisomiques, pour handicapés moteurs, mal-voyants, etc. La plupart de ces enfants vivaient isolés, à l'écart de la nature et de la vie qu'elle incarne. Le matériel emprunté par l'un de ces établissements, pour une durée variant de deux à trois semaines, avait le temps de circuler sans précipitation d'une classe à une autre, d'un service à un autre, touchant ainsi de nombreux enfants.

Dans la nature, aucun objet, aucun être vivant n'est insignifiant. Tout est digne d'intérêt. Pour en convaincre les enfants, nous leur avons proposé, par l'intermédiaire de leur maître ou maîtresse :

- de découvrir les plantes et animaux sauvages vivant dans les rues avoisinant leur école, de les décrire et les dessiner (mousse, araignées ...) ;
- d'étudier la façon dont le pigeon de Paris s'envole, se pose, se positionne pour dormir ;

- d'observer les moineaux parisiens, leurs attitudes, leurs mouvements, leurs mœurs.

Et nous avons distribué chaque année, aux établissements abonnés, des graines à faire germer, des bulbes et plants de fleurs à cultiver dans la cour de récréation ou dans des jardinières. Enfin, c'est avec gratitude que nous avons accepté des dons de spécimens destinés à enrichir notre musée de prêts : roches, échantillons de bois, coquillages, insectes, œufs et nids d'oiseaux, animaux naturalisés, etc. Certains de ces spécimens avaient été récoltés à notre intention, d'autres provenaient de vieilles collections abandonnées.

Il n'était pas dans nos intentions de livrer tels quels ces objets défraîchis et parfois sinistres aux enseignants. Nous devions auparavant transformer le spécimen brut en un matériel attrayant, suggestif, éducatif, manipulable, visible sous tous les angles, protégé des heurts et de la poussière, l'accompagner d'une notice comprenant d'une part une description, remplacée par un questionnaire stimulant l'observation, et d'autre part un commentaire scientifique.

Les insectes les plus familiers (que la plupart des enfants n'avaient jamais rencontrés) étaient inclus dans des blocs de résine transparente. L'écolier pouvait ainsi, au creux de sa main, observer l'animal sous toutes ses formes, et même à la loupe. Les animaux naturalisés figuraient au milieu d'un diorama suggérant leur biotope : forêt, étang, désert... visible sous tous les angles et recouvert d'un caisson de plexiglas rigide, incassable, lavable et transparent (qualités qui autorisèrent l'introduction des dioramas dans les services hospitaliers). En réalité, c'était tout un milieu naturel, un centre d'intérêt (forêt, rivière, prairie ou bord de mer) qui pénétrait avec le diorama dans les classes : boîtes d'algues, de feuilles ou d'insectes, cris et chants des animaux (disques), documents-photos en couleurs à afficher.

Quelques sujets d'activités proposés aux classes :

- Cherchez tous les adjectifs qui conviennent à cet animal ;
- Représentez, à la peinture, l'animal vu sous tous les angles ;
- Composez une bande dessinée racontant la vie de cet animal.

La réussite de cette expérience originale et unique a dépassé toutes nos prévisions. Plusieurs dizaines de mil-

liers d'écoliers ont bénéficié de notre service de prêts.

Le problème financier n'a jamais été résolu.

- Les établissements scolaires ou hospitaliers versaient chaque année une cotisation modique donnant droit à l'utilisation du service de prêts, au bulletin trimestriel, ainsi qu'aux distributions de végétaux.
- Les subventions versées par le Ministère de l'enseignement et la Ville de Paris demeuraient dérisoires. Elles représentaient à peine la moitié du montant des cotisations.

La Nature à l'École a en partie fonctionné grâce au bénévolat, grâce à des aides compétentes scientifiques, techniques et artistiques, mais surtout grâce à la collaboration des enseignants, collaboration active, compréhensive, solide, efficace et toujours amicale. Le seul obstacle qui nous ait résisté, l'argent, a triomphé de nous après vingt années de lutte, mettant un point final à l'existence de la Nature à l'École.²

¹ Présidée par Théodore Monod, dont le renom, les avis et l'aide, tant morale que matérielle, ont encouragé et soutenu nos efforts vingt ans durant.

² Suite à mon départ en retraite, nous avons proposé à un organisme d'État d'intégrer notre service de prêts, alors en plein rendement, avec son matériel considérable et remarquable (plus de 250 dioramas, des centaines de spécimens bien présentés, des milliers de notices pédagogiques, 6.000 photos prêtes à l'affichage, une soixantaine de disques, des livres et revues, etc. ...). En contrepartie, nous demandions la nomination officielle et rémunérée d'un scientifique pédagogue à la direction de ce nouveau service. Cela nous a été refusé.