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Museums, Education and the McLuhan Centre

It was at the annual convention of the National Association of Educational Broadcasters in 1958 that Marshall McLuhan first used the phrase "the medium is the message" in an influential forum.[1] In the decades that followed McLuhan's name acquired ever wider associations with media and communication, to the extent that his pioneering studies on whether one learns better from books, radio or television have been largely forgotten. Today he is remembered primarily as a visionary who demonstrated the importance of studying effects of media on knowledge and life in general. His problem was that in 1958, or even in 1980 when he died, there was no framework for studying this at a practical level. There were no national data banks of books or paintings; there were no networks for electronic mail or satellite communication. One could speak of the global village, but could not yet live it, let alone study it.

In 1980, few persons could have foreseen that this framework would be created within the next decade. But this is what has happened. In the library world, for instance, databanks are acquiring new dimensions. In the United States, systems such as RLIN (Research Libraries Information Network) and OCLC (Online Computer Library Center) provide access to tens of millions of titles. In London and elsewhere discussions are underway that the pioneering efforts at computerized lists of books before 1500 (incunables), books from 1500-1640 (Pollard and Redgrave, Wing), the 18th century short title catalogue (ESTC) and the 19th century short-title catalogue, which began as isolated projects, will be coordinated into a single mammoth list. In Paris, under the direct jurisdiction of President Mitterand, plans proceed in the direction of a new Bibliothèque de France, which involves computerizing 300,000 books by 1995, of which at least 100,000 will be entered on optical disks. Meanwhile, the EEC has recently conducted a survey of 75,000 libraries containing well over 1 billion books, with a view to integrating them in a single electronic framework.

A similar revolution is underway in the museum world. Here the Canadian Heritage Information Network (CHIN), which was the world's first system to introduce standards at a national level, has served as an important model. Its methods were, for example, adapted by the Getty Conservation Institute in establishing their new international databank on conservation materials and literature. Canada's CHIN system now has over 4 million documents. The U.S Parks Service in Washington is developing a computerized list of its 26,000,000 objects. Art galleries are equally affected. The National Gallery in Washington was one of the first to produce a video disc of some of its major paintings. Now analogue or digital records of paintings are fast becoming a trend. Meanwhile great photographic collections such as the De Witt in London or the archive in Marburg are also being made accessible via computerized versions of Van de Waal's *Iconclass*. At Marburg, partly with the support of IBM, the images themselves are also being digitized and there are concrete plans for a computerized catalogue of all German paintings. At the same time, systems such as Bitnet and Euronet have made electronic mail a reality, and communications satellites such as the Olympus are now a reality. The global network is becoming a fact.

Thus far the motivations for these projects in libraries, museums and art galleries have been largely pragmatic. A prime concern has been the question of internal administration: helping large institutions to keep track of their collections. There has also been the question of security. Collections which are precisely documented visually as well verbally are more readily insured and in the event of theft, international bodies such as Interpol can more readily trace individual items. It would hardly be worthwhile, however, if the only defence of progress was something measured in terms of simple speed of access. McLuhan insisted that these new technologies would have profound implications for knowledge, understanding, education, and indeed almost every dimension of our lives. As is so often the case with visionaries he died too soon, before there was a framework. In 1990 that framework is in place, and the time has come to take up anew the great questions to which he drew the world's attention. Hence the proposal that follows.

At the moment the enormous data banks which are being created by libraries, museums and art galleries overwhelm casual users with an unbelievable amount of detail and seem to many persons as mere lists, which have got out of hand. They are, in fact, vast new repositories of raw facts which need to be made accessible in new ways. What is needed is the equivalent of a clearing house, where the new potentials of these data banks will be explored particularly with respect to their educational applications: a place where the lists become new keys to knowledge through new curricula which offer multiple points of access. The curriculum at all levels of the educational system will be transformed. This is best illustrated with the help of examples.

For the elementary school level these databanks can provide examples from the realm of art to illustrate basic problems in topology,[2] in Piaget's sense: knots, twisting, bending, folding etc. and later the basic kinds of continuous transformation: similarity, affinity, reflection etc. In so doing children will discover links between art and mathematics, that mathematics is not simply an abstract puzzle, but rooted in practical, visual situations. They can also be introduced to basic aspects of Canadian geography, history and culture. Links with data banks will help children relate examples of narrative painting with written stories, and thus introduce them to the interdependence of art and literature. Links with science museums will introduce children to basic principles of science.

High school students will also profit enormously if they can consult these databases to learn not only about Canadian history, geography, culture, art, and science, but also about North American, European and Asian parallels or contrasts. Students of English or French will discover how the theme of Hamlet is not limited to Shakespeare, that the holy grail, unrequited love, the tragic hero and the clown are *topoi* which constitute basic strands of literary culture. Students of chemistry having been introduced to the subject through projects such as Professor Lamb's Chemistryland, could be given access to aspects of the chemical databanks created by firms such as Hoechst. Students of physics could relate basic principles in their textbooks with demonstrations in science museums. Students of biology could learn about basic features of birds using programmes such as Professor Lamb's *Buildabird* and then access nature films such as those produced by Owl Television. Similar programmes can be developed for animals, plants and for the entire ecosystem.

University courses will be equally transformed. In the past students in art history have been told to read a standard textbook such as Gombrich, Janson, or Hartt, and shown a series of slides. In most cases there was no opportunity for students to peruse and study these slides at leisure outside the

lectures, and no means to examine how what was seen in a particular course reflected only a small sample of the immense corpus of (extant) art and artefacts of cultural history. The new databanks of images such as the Marburg Archive, when linked electronically with *Iconclass* as a search system open a new range of possibilities. The slides used in a given lecture can be made available to students through a list of numbers of these images on the optical disc. Hence, if a student has heard about Botticelli's *Birth of Venus* in a lecture, they can study the image in more depth on the disc, search through representations of Venus to explore the history of this theme, and study cultural variants, i.e. how Italian treatments of Venus differ from those in Germany, France or the Low Countries. A more enterprising student can explore how the theme of Venus compares with other classical subjects at a given place and time, or examine correlations between the recovery of classical texts such as Ovid, and the popularity of a classical theme in art.

With the aid of new tools, these horizons can be greatly expanded. If the techniques of pattern recognition are adapted to paintings and art historical artifacts the Warburg tradition of examining the continuity of certain motifs can be automated for those cases where a visual quotation borders on being a copy. A catalogue of spatial forms, ornaments and other basic techniques can be developed in order to create automated access to these forms both in paintings and manuals on art, thus providing a new approach to questions of theory and practice that is quantitative and potentially systematic.

If this is combined with the resources of CHIN and the U.S. Parks Service, the implications are equally profound for students of Canadian history, anthropology, ethnology and other subjects. A student concerned with an Indian artefact, such as a peace pipe or a headdress, can consult the databank to see how many still exist and what variants come through different tribes and regions. This applies equally to American, European or comparative history or cultural anthropology. If this is then linked with the knowledge made available in data banks, the whole nature of university education will be changed. Students will be less concerned with memorizing a given teacher's lectures. They will learn how to use these new databanks to evolve their own views. Rather than being measured simply in terms of one individual's horizons they will be able to benefit from the entire corpus of knowledge. The teacher's role will become one of guidance. By way of introduction specific courses on perspective, Leonardo, mathematics and art are foreseen.

At the level of research the implications will be equally profound. Where one was formerly limited by the resources of local libraries and museums, one will now have access to an ever increasing number of institutions linked by networks. Where scholars now need to collect microfilms from disparate places, in future all texts on a subject such as perspective will be available on optical disc as a knowledge package. Knowledge will be accessible through various classification systems thus taking into account different ways of cubby-holing knowledge. It will introduce new possibilities in terms od relating knowledge in different scales and contexts, in seeing its historical dimensions, comparing parallel developments, changing relationships between theory and practice, between concrete and abstract examples; between static and dynamic cases.[3] Different interpretations of a given event or fact will also be available. Indeed precisely because the system is modular and able to accept radical views as simply a further interpretation, the data bank may well become our most powerful weapon against authoritarian political movements: rather than fighting them, it will reveal their position on a spectrum of human possibilities.

Electronic media (usually referred to simply as computers) are the first case, which allows knowledge recorded in an earlier medium, (e.g. oral, manuscript or printed), to be reproduced in this original medium: i.e. oral knowledge can be recorded digitally and then played back orally, rather than being translated into some other medium such as print. This characteristic of electronic media introduces new dimensions into the potentials of comparative media studies, and make it possible to pursue McLuhan's vision in new ways.

In the long term, much more is involved than a change in the local climate of education and research. A restructuring of the whole of knowledge is implied, particularly in terms of the quantity of documents made available and the number of access points to this literature. In a sense it will simply be a completion of the vision that guided the authors of the *Encyclopédie*, but at a level that was not possible given the limitations of print, for it will combine visual and verbal knowledge in new ways, and instead of using static diagrams by way of illustration, it will reconstruct the various stages thereof with multiple diagrams sequentially and temporally linked. Of necessity this revolution will be international in nature. Hence the McLuhan Centre, besides developing a Canadian standard, will function as a national clearing house, acting as a link with other national centres such as Paris or London in a new global enterprise.

CHIN has created a network between museums. Through accords such as that with the Marburg Archive this will increasingly expand into an international network. If the McLuhan Centre is made a repository for the results of these projects, it can become a national centre devoted to translating this raw material into more accessible forms. This will involve three basic tasks: 1) to develop multi-media techniques permitting easy transition between verbal lists and visual images; 2) extend the data bank on perspective already at the Centre to include a repertory of basic spatial forms and gradually create a compendium of techniques to study interplay of theory and practice; 3) in coordination with the Ontario Institute for Studies in Education and the Faculty of Education, create courses which will prepare teachers for this new era in education. These teachers will in turn become involved in designing pilot courses, standards, and networks to link these courses with their own schools. The McLuhan Centre will thus be an intermediary between CHIN's networks linking museums and new educational networks linking schools throughout the country through distance education. The great efforts to computerize museum collections can thus provide new incentives for children to visit their local museums and to become aware of a larger cultural horizon. At the same time McLuhan's vision will become a reality, as a new global network emerges, changing the nature of education and the very concept of knowledge.[4]

Notes

[1] Philip Marchand, *Marshall McLuhan. The Medium and the Messenger*, Toronto: Vintage Books, 1989, p.137.

[2] See: R. W. Dawson, *Education of young children through geometrical concepts and the visual arts: topology and visual metaphors*, Ph.D., University of Toronto, 1990.

[3] Cf. the author's: "Can museum computer networks change our views of knowledge?": *Museums and information. New technological horizons. Proceedings,* Ottawa: Canadian Heritage Information Network, 1990, (in press).

[4] For an exploration of how computers will affect knowledge see the author's: "Thoughts on the reorganization of knowledge", *Automatisierung in der Klassifikation,* ed. I. Dahlberg, Frankfurt:

Index Verlag, 1983, pp.141-150 (*Studien zur Klassifikation*, Bd. 13); cf. "Computers and a new Philosophy of Knowledge."