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Oral Session 25

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Poster Session 1

AN INTERNET ATLAS IN THE SCHOOLS OF QUEBEC: REALITY AND IDEALS

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Abstract

We are living in a period of technological change with, in many countries, a revolution taking place in elementary and secondary education. Teachers want age-appropriate materials that can be used in class and accessed by students on their own. One invaluable educational teaching material is the school atlas. What are the basic components for a school atlas that can be accessed on the Internet? Following general background statements on graphicacy and the impact of technology on education and mapping, the question posed above is investigated in relation to an ongoing study relating to the creation and design of a prototype Internet atlas of Québec for school children between the ages of 8 and 17 years. The atlas's projected components as well as the rationale for the inclusion and a child-centered architecture are presented.

EVALUATION OF CARTOGRAPHIC EDUCATIONAL SOFTWARE FOR CHILDREN

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Abstract

The use of printed maps or rather printed atlases is standard at school, especially in lessons of geography and history. However, to read and interpret the abstract cartographic signs is very difficult for younger and sometimes also for older children. It is necessary to acquire a minimum of cartographic knowledge. In the era of electronic media it is possible to advantage the specific of new media to improve the achievements at using maps. The Commission on School Cartography of the German Cartographic Society (DGfK) developed criterions of assessment for such media and evaluated cartographic educational software made for children. The research gave the learning theoretical angle priority treatment.

A STUDY OF CHILDREN'S COGNITIVE ABILITY ON MAPS

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Introduction

Maps are the visualized forms of the real world and the important source and medium to acquire spatial knowledge for children. Also, map is a powerful tool to enhance children's abilities of spatially imagination, abstraction, and logic thinking. The study in this field is very important for development of children's intelligence (Wang 1995) and is an important way to develop children's talent.

In China, the study on children's cognitive ability on maps still is a nearly untouched field. Therefore, we selected a group of children from some primary schools and kindergartens in the City of Nanjing and with different ages to conduct a survey. Its main purpose is to understand the present situation of children' cognitive ability on maps and promote the further studies in this field.

DESIGN AND IMPLEMENTATION OF A PROTOTYPE SOFTWARE FOR INTRODUCING CARTOGRAPHY TO CHILDREN

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Abstract

In the present paper the design and development of a software appropriate for introducing basic cartographic principles to school children aged from nine to fourteen years old is analyzed and discussed. The selection of the concepts incorporated in the software design takes in consideration recent cartographic and psychological research trends. The
design of the software is based mainly on four components: the existing cartographic principles (i.e. geometry, generalization, symbolization, map characteristics, etc.), children's cognitive and educational level, the school curriculum, and contemporary trends for developing computer software. The prototype software is developed under an
object-oriented environment, using Microsoft Visual Basic as programming language. It can be executed as an application under Microsoft Windows 95/98/NT v. 4/2000 operating environment on a typically configured PC with no special requirements. The graphical user interface (GUI) is simple, friendly and mouse driven in order to satisfy the needs and abilities of school children as users.

KEY-WORDS: Children and cartography, visualization tools, human—computer interaction.

MAPPING RIO DE JANEIRO — THE WAYS FROM THE PAPER TO THE DIGITAL WORLDS

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Summary

The objective of this work is to introduce ways for the apprenticeship of space by means of maps, by digital means, through the convergence of mass communication means. The utilization of well known software resources applied to the maps of the School Atlas of the City of Rio de Janeiro in printed material and games suitable for users of different ages in CD-rom amplifies and complements the use of the map as a valuable didactic resource. The path of printed material to the digital system does not flow in a one way direction but in round trip directions where a didactic resource or a media feeds the other in the information systems interactive nucleus for teachers and students of the municipal teaching net.

CHILDREN'S MENTAL REPRESENTATIONS OF SMALL SCALE THEMATIC MAPS

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Children's map schemata

Small scale thematic maps that use point symbols to show the location of economic activity are a common feature of school atlases. They have, however, undergone a considerable amount of generalization in their preparation and we know little about how school students make meaning from them.

Map structuring mechanisms that organise sensory input and retrieve information from long term knowledge representations have been termed schemata (Rumelhart and Norman, 1985). Schemata are particularly useful in that they enable us to depict knowledge acquisition in a more organic way than a linear hierarchy (of the sort advocated by Gagné, 1965) by using semantic networks that show relationships in many directions. Schemata can be conceived as nodes with links between them. The nodes represent categories or attributes of categories and the links specify possible relationships that exist between the nodes. Mental categorisation of new sensory information is influenced by potential relationships specified by the schema that an observer brings to bear on a situation - such as understanding a map.

WHEN BOY SCOUTS GO TO CAMP: EXPERIENCING AND LEARNING – MAPPING – THE ENVIRONMENT

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What can we learn about nine and ten-year-old Boy Scouts -- they are called Webelos — from their first camping experiences? Particularly what changes occur in their knowledge of the environment? The underlying process is basically quite simple. First, everyone interacts continually with the environment.

> Knowledge of one's location in the environment is of primary functional significance and environmental orientation skills are an important type of behavioral competence. Apart from extrinsic pressures to be oriented in the environment. Berry (1971) has shown that different ecologies put different amounts of extrinsic pressure on spatial abilities. There are a host of intrinsic motivations that are exercised in good sense-of-direction people. [Kowalski and Bryant 597]

There is, in one direction — from the environment to the person, a flow of information and, in the other— from the person to the environment, behavior. This can be presented as a simple model. The model considers the human as an information processor. If we accept that everyone has sensors, perceptual processors, cognitive processors, and memory, then there is the mental (or cognitive) map.

SIMULATION MODELOF AN AEROPHOTOGRAMMETRIC SURVEY DEDICATED TO THE COMPREHENSION OF THE METHODS USED IN THE CREATION OF MAPS FOR CHILDREN

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Abstract

The study of cartography since the beginning of school has more and more reaffirmed its importance, since students learn how to read and comprehend maps, becoming its users. It is also important to make the resources used in the confection of maps explicit to children, so that they get able to correspond the map to what it is representing. From the proceedings of surveys used for the map's elaboration, the one proceeding from the aerophotogrammetric survey most attracts children's attention, since the photography is a palpable, perceptible and very representative material. Nevertheless, children are not able to comprehend well the survey itself due to the difficulty to visualize how it is executed. This study is about the elaboration of a simulation model of an aerophotogrammetric survey, which matches a reduced model from an area of the Universidade Estadual de Maringá with a light projection model. This combination makes possible for children to comprehend how an aerophotogrammetric survey is elaborated, and also helps them to understand concepts like scale, altitude, vertical projection, oblique projection, contour line and datum plane, from others, in an attractive and entertaining way.

GRAPHIC AND CARTOGRAPHY REPRESENTATIONS BY STUDENTS OF A KNOWN AND UNKNOWN WORLD

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This study intends to discuss graphic and cartographic representations of a known and unknown world of 13 to 15 years old students, between 7th to 9th grades from Niterói's schools in Rio de Janeiro state. These representations refer to "The world in the great navigations era in the XV and XVI centuries" and "The Actual World". Their purpose is to evaluate the knowledge acquired in the school about cartographic representation, continents and the expansion of the known word and its representations.

The research is part of the project developed at Universidade Federal Fluminense (UFF), about 500 years of Brazil's discovery and it had teachers from Brazil and Portugal working together. Especially in this study, we addressed to evaluate knowledge degrees and levels about cartographic, geography, history and the role of the narratives and media during the commemorative year of 500 years of Brazilian lands' discovery. We use as main instrument graphic representation - the drawing. The comparison between Brazilian and Portuguese students will allow us to evaluate: different points of view of known/unknown worlds, a social imagery that remains through the school knowledge.

MUNICIPAL ATLAS AS A RESOURCE FOR UNDERSTANDING THE WORLD

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Abstract

This work has as its objective to discuss the validity of a semi-elaborated Geo-Cartography Municipal Atlas for environmental education (7 to 11 — year — olds) as a tool to understand the world. We believe that these learning-by-doing activities can help young students become cartographically literate and also surpass empirical knowledge, studying Geography as a science. Studies about Geography teaching quality in elementary schools (7— 11 year old students) concern:

-university education and training programs for almost all teachers of these age classes;
-the unavailability of didactic materials to teach local Geography; State and Municipal
Education Secretaries have made efforts to produce materials to help teachers methodologically with training programs.

We need to think about Geography teaching (7 — 11 — year - olds) seriously to find solutions to improve its quality. We need solutions to improve the quality of university education and have training programs for teachers. We also need materials that allow contents of local Geography to have seriousness and depth like a science. It is necessary that local Geography crosses from common sense to Geography science using concepts, theories and analyses.

The new Basic Educational Law, signed in 1996, opens the possibility of improving the quality of elementary school education because it determines that all teachers have to have a college degree by 2007. But today, these teachers do not have a college degree, so they do not have specific knowledge in Geography science. They teach math, science, history, language, art, etc. In addition, they do not have enough knowledge about teaching theories and methodologies.

Therefore, these teachers do not have:

-materials about local Geography,
-enough ability to use local Geography references with their students,
-skill to observe and raise geographic elements in field studies and in documents to make maps and graphs.

Teachers who work with students at these ages should have as an objective the development of skills and the creation of circumstances to construct Geography concepts that are foundations for later classes. In order to this, teachers have to have specific knowledge in Geography, Cartography and Methodology to teach both contents and skills well. Construction of this Municipal Atlas is intended to help teachers, in their work with young students, teach Geography with local information. It is based on the methodological proposal: “make and understand”, developing the abilities of teachers and students to investigate. In this way, we will have researcher-teachers and researcher-students too!