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## **Citizenship education: the role of media environments in active learning**

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The media environment, which is a magnificent resource, providing tools for exploration, play, research, creation, communication, self-expression, and synergistic connections with people and ideas is increasingly influencing the experiences, values and attitudes of all learning activities, and of active learning in particular.

We therefore need to identify and analyse all the technologies which might support active learning in civic education: both the behavioural science and educational technology levels. This educational analysis depends on the context of the complex various technological factors, teaching strategies, learning styles and so forth, but civic education goals and purposes are of prime importance. Which types of technology significantly affect the child's attitudes, values and knowledge formation, and how can these technologies contribute to the formation of social and moral responsibility, community involvement and cultural identity, political awareness and cross-cultural communication?

If, as has been suggested (Delgado-Moreira, 1997), children's identity and citizenship "... in reality comprise a complex network of behaviour, emotions and history ...", I suggest that civic education technology environments for active learning can be designed around two basic aims:

- changing the individual role of the learner from passive recipient to active producer and creator, and
- stimulating the learner's social and group (optionally community) activities.

### **Technology as an intellectual partner**

One of the biggest changes in educational understanding that has arisen from cognitive science research in the past two decades is the switch from behaviourism to constructivist learning theory (Duffy et al, 1993). Constructivist theory is more appropriate than the more traditional approach, because it views learning as a process in which students must construct their own meaning from their experiences, based on what they currently know. 'Open' technologies are designed with this constructivist view of learning in mind, and they provide important facilities through which the student may access, discover and construct knowledge through an active and self-directed learning process. This is so in all learning and teaching activities, including civic education.

Learners use technologies to represent what they know; they are learning *with* technologies rather than *from* technologies: they form an intellectual partnership with the technology. Students' work with computers, for instance, enhances the capabilities of the computer, and the computer in turn enhances students' thinking and learning. According to Jonnassen (2000), students use technologies in an intellectual partnership in order to

- represent their knowledge (to articulate what they know),
- reflect on how they came to know it (what they have learned),
- create (construct) personal representations of meaning, and
- support mindful thinking.

Technologies that particularly support active learning include knowledge creation and organisational and expressive tools:

- the presentation of knowledge environments, such as hypermedia (multimedia), videos and scenario-based simulations etc.,
- information interpretation tools, for example visualisation tools, information search engines, databases and expert systems in the role of consultant and advisor which allow a better understanding of the information encountered,
- tools for exploring and experimenting with phenomena (even in the social area and the community) such as microworlds, games and virtual environments,
- tools for organising what learners know such as semantic networking software, databases and expert systems and systems modelling tools, tools for building simulations and representing mental models,
- communication tools for socially construction, such as conferencing environments, E-mail, chat, videoconferencing, etc.

What are the most appropriate media for forming children's identity, national identity and citizenship in relation to their behaviour, emotions and cultural consciousness? I should like to suggest some basic technology applications which we use, or which we should perhaps apply more in civic education practice.

### **Videos as authentic and narrative applications**

Videos support open environments by presenting complex, authentic tasks that transcend the boundaries of academic disciplines. Students engaged in video exploration can learn how to solve novel problems requiring several steps and involving several disciplines, for example geography, history and civic education. The information to solve the problem is embedded within the video, which is reviewed and studied for relevant facts. Each video ends with a challenge to solve the problem, rather than offering a resolution. Motivation and comprehension are further heightened through the use of the narrative format, i.e. a story providing a realistic context. The learning format of the videos is generative - the stories must be completed with a resolution provided by the students. Such videos are often created in pairs of related stories, so that students can transfer reasoning concepts learned in one video context to the new contexts of a similar programme.

A group of researchers at Vanderbilt University (Masek et al, 1996) designed a series of video adventures, *The Adventures of Jasper Woodbury*, which require reasoning to solve the complex problems involved in planning a journey. The videos, each 17 to 20 minutes long, provide natural contexts for learning geography, history and science. This constructivist approach to video applications is motivating and allows students to participate actively in the learning process.

### **Can simulation games and microworlds be beneficial for understanding the 'real' community?**

Microworlds create self-enclosed simulations that mimic real-life phenomena, allowing learners to explore and manipulate complex systems. The most important aspect of microworld technology is its openness - it offers the possibility of constructing one's own knowledge. The microworlds, as for the games based on simulations, are also influenced by social science. The Software game *SimEarth* allows students to act as civic or world leaders, simulating cities or planets with a wide range of problems and issues - political,

economic, environmental and so on. In *SimCity* there are simulated citizens (Sims), traffic, commerce, industry, infrastructure, taxes, and other important aspects of city life to manipulate.

The simulations *SimLife* and *SimHealth* are very interesting from the civic educational viewpoint. *SimLife* allows users to explore the interaction between life-forms and their environments. Users can manipulate the genetics of both plants and animals to determine whether these new species could survive in the Earth's various environments. Players can also create new worlds with distinctive environments to see how certain species (either earth species or their own creations) fare within them. *SimHealth* is a policy simulation about the US national health care system, which is extremely complex. Balancing the needs of citizens, the medical community and the insurance companies is no easy task. *SimHealth* gives students a chance to try to improve the current US system, or to create their own. Players must declare their values (balancing liberty against quality and community against efficiency), then create new policies and change existing ones. They must answer complex questions such as how to control medical costs; what benefits would be provided as part of standard cover; from what sources will insurance companies receive their funding? Segments of each community suffer or flourish as a result of these decisions and the player is judged on the basis of whether the policy decisions made are in line with the personal values declared.

All these simulations provide the following important didactic benefits:

- dynamics and openness. They are all useful dynamic models, not a predetermined sets of events, and the player is in control of the features of simplified 'worlds'. The models react to every action and decision of the player.
- instant visual feedback from actions and decisions. Students learn about the consequences of their actions and the interrelations of different aspects of the city.
- learning and teaching is a product of playing the game – the competitive activities are very motivating.

However, some experts (Hill et al,1995) suggest that there are also factors which might limit the use of complex simulation programmes:

- simulations (including all those mentioned above) can be very complex, which may result in a large amount of class time being used (perhaps more time than some teachers are willing to sacrifice) to explain or demonstrate the game,
- the games do not offer a great deal of support for group activities, do not stimulate socially contacts or the player's interrelations with others.

### **Concept mapping tools as a support for the semantic organisation of complex topics**

We suggest that it may be possible to practise the teaching of complex civic education themes by using software tools for organising what students know, for example by semantic networking software. Semantic networks are graphical maps of concepts that describe the cognitive structure of a person's learning process - the ideas and their complex interrelationships – to help the learner, perhaps simplistically, to describe and analyse his or her knowledge structures (Kommers et al, 1992). The maps of concepts are graphical structures - webs of nodes and links - which interrelate ideas and describe the nature of the relationships between those ideas. Semantic networking software includes computer-based versions of print-based concept mapping techniques that have been used

to facilitate learning process. Examples of these semantic networking tools (computer-based graphing tools) are applications such as *Inspiration*, *Learning Tool*, *SemNet*, *MindMan*.

### **'Groupware' in schooling too?**

Groupware is technology designed to facilitate the work of groups. The technology may be used to communicate, cooperate, coordinate, solve problems, compete, or negotiate. While traditional technologies like the telephone qualify as groupware, the term is ordinarily used to refer to a specific class of technologies relying on modern computer networks. Civic education is a very appropriate area for use of CSCW (Computer-Supported Cooperative Work) software (*Informatik XI, 2002*) which examines the design, adoption, and use of the groupware. Despite its name, this field of study is not restricted to issues of cooperation or work but also examines the competition, socialisation, and play of all the participants, including the students. The field typically attracts those interested in software design and social and organisational behaviour, including business people, computer scientists, organisational psychologists, communications researchers, and teachers. Groupware technologies are usually categorised according to two primary dimensions:

- whether users of the groupware are working together at different times ('asynchronous groupware', for example E-mail, newsgroups, workflow systems, hypertext, group calendars, collaborative writing systems), or at the same time ('synchronous groupware', for example shared whiteboards, video communications, chat systems, decision support systems, multi-player games), and
- whether users are working together in the same place ('face-to-face') or in different places ('distance').

Could we not use these technologies in project-based instruction, either within the classroom or in projects involving community, national, or international problem solving? In teaching practice, these systems can be used together; they are in fact intended to be used in conjunction. For example, group calendars are used to schedule video-conferencing meetings, multi-player games use live video and chat to communicate, and newsgroup discussions spawn more highly-involved interactions than any of the other systems. Another possibility is the use of Virtual Environments for CSCW, because it offers a very interesting facility for accomplishing educational goals, but there has been as yet very little experience of this.

### **Multi-user virtual environments as an advanced tool of civic education?**

Designing and using multi-user virtual environments for civic education activities is very complex, and may be controversial. In the context of concepts of citizen, citizenship, identity, community, culture, there are frequently disputed terms, such as "netizen" and "netizenship", virtual identity, virtual community as well as cyberculture etc. But we need to examine all aspects - social, moral, ethical, international and political - of these advanced software systems as serious means of extending our educational tools. We should be aware that many sophisticated internet computer games follow questionable political endeavours - for instance, Simon Wiesenthal Centre researchers have recently uncovered *The Stone Throwers*, an elaborate anti-Israel internet computer game which is

the latest weapon in the campaign against Israel. The object of the game is to have the stone thrower knock down and/or kill as many Israeli soldiers as possible.

There are many questions to be asked about virtual identity. One of the most interesting aspects of cyberculture is the changing notion of selfhood. How do we represent ourselves within online spaces and how is this representation different from our 'real' self? Where are our bodies when we negotiate through electronic spaces? How much of our online persona is a product of self-representation? How can - or do - we tweak this persona?

There are networks which exist without shared geographic space, and also very interesting communities indeed within shared spaces which could be used for civic education. These community networks - place-specific and computer-networked web sites - are devoted to a particular city, town, or village. Community members come together - not face-to-face, but online - to discuss local issues, browse through city council Minutes, order a dozen roses or a pizza. One of the fascinating aspects of community networks is the way they attract interest from so many fields: advertising, architecture, community studies, sociology, urban planning and design etc. It has been suggested that they symbolise a new era of community activism: Douglas Schuler (1996) notes that they "are generally intended to advance social goals, such as building community awareness, encouraging involvement in local decision-making, or developing economic opportunities in disadvantaged communities".

## Conclusion

The following advanced activities with open technologies are suggested as useful additions to teaching methods and learning strategies:

- mentoring - such as advising and guiding students e.g. by computer conferencing (mailing) with experts, and guest lecturing, which promotes interaction between the students and persons in the larger community,
- retrieval of information from online information archives such as national and commercial databases,
- interactive chat and video-conferences, used to brainstorm with teachers or peers and to maintain social relationships,
- personal networking and professional growth: such activities as finding persons with similar interests on scholarly discussion lists,
- facilitating collaboration and designing individual or group presentations,
- peer review of writing, or projects involving peer learning, groups/peer tutorial sessions, and peer counselling,
- project-based instruction - either within the classroom or in projects involving community, national, or international problem solving,
- course management - for example advising, delivery of course content, evaluation, collecting and returning assignments.

Using open technology as support for extended classroom inquiry involving guesswork, debate and the use of multiple materials is surely part of the future of civic environmental instruction and active education. Civic education instructors can thus vary a course's instructional design to include everything from structured projects to open projects in which students are free to work on 'messy' - but authentic - problem solving. However, a disadvantage may be that, since the students must manage their own learning, this new-found independence may be a hindrance to those students who need more structure.

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