



## Digital Learning Tools and Developing e-Learning

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### **Abstract:**

*Digital learning tools not only enable the integration of technology in geography learning, but also bring a number of significant benefits to teaching methods and student understanding. However, it is difficult to find research that looks comprehensively and systematically at the use of digital learning tools in geography education. Therefore, this research aims to comprehensively examine the use of digital learning tools in Geography education. Analysis which focuses on the types, impacts and obstacles in the use of digital learning tools in geography education. This research shows that there are various types of digital learning tools used in geography education. In addition, the use of digital learning tools in geography education has had a positive impact. However, there were still a number of obstacles in implementing digital learning tools, such as limited technical resources, lack of additional training for teachers, as well as limited time, infrastructure and access, which need to be addressed immediately. The implication of these findings is the need to increase teacher training, improve educational technology infrastructure, and develop relevant curricula. In addition, the further research involving long-term evaluation and in-depth analysis of the impact of using digital learning tools will enrich understanding of the benefits of using technology in geography education.*

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**Keywords:** *Digital learning tools, Technologies, mechanisms for students.*

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### **Introduction:**

Technologies offer a range of tantalizing potentials for education—in terms of

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providing access to media- rich context and for students to visualize and interact with learning materials, as well as a variety of mechanisms for students to communicate and collaborate with their peers and tutors. This book describes the findings of an interdisciplinary research project, which provides a contextualized case study of a concerted attempt to integrate e-learning in one discipline, geography, across an international context. This chapter outlines the learning philosophies and learning strategies that inform the development of e-learning materials, focusing on a particular discipline context. The chapter authors come from a range of disciplines: geography, education, and computer science. Out of this inter-disciplinary collaboration has come new understanding of the range of approaches to learning (by the geographers) and new understanding of the enthusiasm of subject specialists (by the non-geographers). We will also report on understanding developed through working with colleagues in another country. In particular we have gained valuable insights into the challenges associated with carrying out interdisciplinary research in this area, as well as working in an international context. At the heart of the work reported here is the notion of creation and use of learning materials for geography. We set down some definitions of learning materials to begin with. We critique the widely used “learning object” concept as being computationally convenient, but restrictive, and argue for a more specialized term that better describes the discipline context. Some definitions demand that a learning object stands alone without reference to external resources. Geography teachers usually want their learners to engage with Web-based materials. Geographers want their students to tap into a wide variety of digital resources out there in cyberspace that inform them about the world. They wish to guide the students through the resources and their uses, empowering them to make their own explorations in the future. To import materials and hermetically seal them within learning objects potentially sterilizes them and presents an oversimplified view of the world.

The economy of information society is based on the creation, dissemination and exploitation of data, information and knowledge. This will be one of the dominant features of this century, and will play a fundamental role in generating a recovery in growth and an increase in employment. The extended use of the potential offered by information and communication technologies (ICT) will create new service markets; will speed-up administrative and decision-making procedures. Developments in the ICT have also had a huge effect on the learning environments.

E-learning can cover a spectrum of activities from ICT supported learning, through blended learning (the combination of traditional and e-Learning practices), to online learning. One of the key issues in pedagogy is individualization: adaptation of the teaching to the needs of

individual learners. It's needless to say that the computers and internet had a great impact on our lives in the last decade. The society, science and technology around our profession are changing rapidly along with this technological advance. We can search almost everything, learn and communicate anytime (24/7) and anywhere (mobile computing). The rapid developments of the last decades in surveying techniques, technologies and methodologies create growing need for continuous changes in education and an increasing demand for continuing professional development. The field of Geographical Information Systems is affected directly by these changes because only a few training services are available and the universities or companies - based on their own limited resources - are not able to respond to the exponentially growing demands.

**E-Learning infrastructure incorporates at least five functions (Rossett, 2002):**

1. Learning: generates knowledge in our brain, we remember lessons learned, and use if needed.
2. Information support and coaching: while learning is directed at enhancing individual capacity, this function focuses on building external resources.
3. Knowledge management: aims to collect documents, practices, and solutions in an organized way, and facilitates wide distribution.
4. Interaction and collaboration: ICT can be used to engage, blend, and stimulate learners.
5. Guidance and tracking: new technology enables improved guidance, assessment, tracking, and information. Management systems in e-Learning can guide learners towards critical skills and assets to meet their needs.

**Some of the most important requirements of e-Learning are listed below:**

1. Learning services must be designed using learner-centred approaches, accommodate a variety of delivery methods and multiple learning styles.
2. On-demand access, so that learning can happen when needed. Learning materials and most of the support are available 24/7. Learning does not require physical presence, however, fosters better learner/instructor contact.
3. Should promote greater student interaction and advance collaboration. e-Learning uses interactive technology to develop fun, engaging, effective simulations. Collaborative learning in the online environment is often far easier and more comfortable than in the classroom. Companies can share working experiences, staff members can quickly learn the inner technologies and techniques. e-Learning systems allow team members at collaborating companies to understand shared objectives.

4. Learning, education and training on new technologies and methods can increase employee efficiency and collaboration, improve computer and Internet skills; knowledge sharing keeps skills current.

**The implementation of an e-Learning technology in an institution can lead to a number of benefits, such as:**

1. Drive business transformation or change. New processes can be implemented faster with an educated staff. Employers can train staff members to handle sophisticated tasks without risking production quality.
2. Geographical barriers of learning are eliminated. e-Learning opens global opportunities. The technologies allow the ability to use tools and resources that are impossible in a traditional educational system.
3. e-Learning cuts the costs, shorten product development cycles, less expensive to produce and maintain, reduces costs for the e-Learning service providers. Learning standards create interoperable objects that cut costs and development time. By developing jointly learning materials the expenses are relatively smaller. eLearning programs can reduce the participation fees without negatively affecting the compensation for high quality presenters. Overall costs for learners, travel time and other associated costs are also reduced.
4. Learning is self-paced, gives learners a chance to speed up or slow down as needed. Learning is self-directed, allowing to understand the content in an effective way.

Human interaction is a critical component for learning. Face-to-face contact is still not comparable with virtual meeting. There are situations in which classroom training cannot be replaced. Certain content because of its nature, importance is not suitable for pure eLearning. Blended learning is an integrated approach that applies a mix of e-Learning and traditional education or training delivery options to teach, support, and sustain the skills needed for learner's competencies. With blended learning, the tried-and-true traditional learning methods are combined with new technology to create a synergetic, dynamic learning structure that can boost learning to better results.

The educational institutions are under intense pressure to get the best course to their learners, in the right format, at the right time, for the right price and, very importantly, in the required quality. To do this, they have to spend considerable time and resources on planning their supply strategy to respond to the demand of the industry or society. This goal can only be reached if the organisations introduce a usable and innovative tool, which serves the above mentioned requirements. This tool must enable networked educational partners to work

together across different and possibly flexible platforms. Moreover it must support the sharing of management and technological information.

Learning platforms are software-controlled learning infrastructures that attempt to replicate what teachers do in the face-to-face classroom. These platforms are normally located on a computer on the Internet (or an Intranet) and are typically accessed by means of a Web browser. Within the last decade numerous e-Learning platforms (e.g. Blackboard, Hyperwave, Ilias, Metacoocn, Moodle) were developed with different concepts and supporting different operating systems. Most of them offer a wide range of functionality for the publication of documents, for promoting the interaction between lecturers and students, and for administration purposes. The systems have features, like electronic assignment submissions, virtual areas for group work, self-assessment quizzes and online testing, tracking specific student activity, poll, glossary, survey, discussion forums, and links to external web-sites.

### **TRENDS**

The trends in e-Learning can be characterised by the following critical issues:

- a. shift from traditional education or training to flexible, individual, self-organized learning,
- b. move to process-oriented learning instead of product oriented learning,
- c. collaborative learning based on a community of learners, experts, facilitators, etc.

In education the adoption of different forms of e-Learning has led to radical shift in the power politics of education not only in terms of providers but also particularly at the level of the teacher-student relation. The old hierarchical structure is breaking down as globally we see shifts along a spectrum from didactic education to communities of learning. From focusing on the local learning environment and its available educational tools, the universities are now facing a new situation, where the students just under their fingertips have access to the global pool of knowledge. Consequently, not only the role of the teacher is changing, but also the whole university organization and the principles of learning in relation to both methodology and pedagogy. The role of the universities will have to be reengineered based on this new paradigm of knowledge sharing.

The ability of students to connect with experts around the world, as well as their group members, also opens new opportunities for learning and professional development. Students and tutors find these opportunities motivating. Distributed instruction, the explosive expansion of networks is a general trend. Whatever the revolutionary changes in technology, the learning is the vital element. The teaching is not enough; it is the active (or proactive)

learning, which is essential.

Educators will be confronted with their changing role in e-Learning environments. While technology-based learning will unlikely able to completely replace the university education, it offers more opportunities for corporate training and continuing studies. However, the role of educators will change: they will become more and more facilitators, providing dynamic update of knowledge databases, transparent and clear syllabi, reading recommendations, etc., and offering guidance and motivation strategies for students who should get used to self-organized study approaches.

Because of the cost of using e-Learning tools decreasing, more universities, governments, companies have added online courses and other forms of distance learning to their organizations (WorldWideLearn, 2008). Based on literature review we can identify the following fundamental trends that will influence the growth of e-Learning over the next decade.

Changing skills require new initiatives. Daily tasks evolving faster than universities can produce qualified experts, many employers apply constant, on-the-job training to remain competitive. E-learning programs help staff members to obtain new skills and critical improvements quickly and efficiently.

- a. Market offers quick start options. Institutions can lease or purchase turnkey eLearning systems on low budgets, or can implement free open source e-Learning. As e-Learning processes become more standardized, clients benefit from shared research and development expenses.
- b. Companies integrate e-Learning into mainstream. More and more organizations exploit intranets to increase communication and productivity. They can easily integrate learning modules into staff communications, and can add similar tools to web-based systems. At the same time the modular nature of e-Learning content allows employees to learn at their desks gradually, in their own pace.
- c. e-Learning classrooms open the world. We are only starting to see the effects that quality education is having on business and industry in developing countries. Likewise, small businesses can access the same level of information and insight that was earlier only available to large companies.
- d. Mobile technology helps e-Learning initiatives. Wireless technology allows educators to reach learners in their working environment. With radio, satellite, and Wi-Fi signals beaming two-way information from distant people can participate in an almost endless array of learning opportunities.

- e. Governments support e-Learning. Governments around the world have discovered that e-Learning programs can dramatically improve the quality of life for citizens while reducing the financial burden on taxpayers. Governments in developing countries have invested heavily in e-Learning programs.

## **CONCLUSIONS**

In order to gather knowledge in any of the rapidly changing technology-related fields, up-to-date learning materials are essential. New development in information technology leads to many new possibilities and tools suitable for renewing or even replacing the traditional teaching methods. Thus the e-Learning methods are expected to change the way we think about professional education. The universities or companies are not yet able to respond the exponentially growing demands because of limited resources or technologies. There is a strong demand for international cooperation in educational developments. In the field of Geo information Technologies there are only few examples of this kind of international co-operations and there is a certain lack of collaborations in networked education.

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