

Teacher Development through E-Learning

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Abstract

E-learning is playing an increasingly important role in supporting the educational growth of any nation. It also offers opportunities for developing nations to enhance their educational development. Worldwide there is growing demand for teachers who have the skills to prepare students to be successful in a technology-infused, knowledge-based society. E-learning can play a critical role in preparing a new generation of teachers, as well as upgrading the skills of the existing teaching force to use 21st century tools and pedagogies for learning. The present paper discuss the importance of including e-learning for teacher development as part of a national strategy for educational development; its role in helping to meet the quantitative and qualitative demand for teachers; and the essential conditions that must be met for effective use of e-learning for teacher development.

Introduction

The United Nations Educational, Scientific and Cultural Organization (UNESCO) World Education Forum emphasized the essential role of teachers in achieving the goals of Education for All. The world is confronted with two trends that have major implications for the world's education systems. The first trend is the exponential growth in knowledge and technology that is transforming all aspects of global society and economy. The second trend is the increasing shortage of teachers in both developing and developed nations. It is estimated that 15-35 million new teachers are needed to achieve UNESCO's goal of Education for All (UNESCO, 2002). This poses new challenges for nations to develop strategies, policies, and resources to prepare and retain the teachers necessary to meet the educational demands of 21st century society.

Many nations are not only coping with shortages of teachers, but with the challenge of updating the knowledge and skills of the existing teaching force. Expectations of what teachers should know and be able to do are continually increasing. Teachers are asked to learn new content, pedagogies, and technology tools for learning. However, resources are often lacking to meet the career-long professional needs of teachers and, even when such resources are available, teachers have limited time to attend workshops because of their classroom responsibilities.

To address the challenges of teacher development, new strategies and methods must be explored. The World Education Forum held in Dakar, Senegal (UNESCO, 2002) stressed the important role that distance learning and information and communication technologies may play in teacher development. E-learning, although not a panacea, represents an important resource for teacher development. E-learning can provide future and existing teachers with access to rich information resources, courses, tools, training programs, online communities of practice, and opportunities to collaborate with other educators around the world. In a very short time, e-learning has become one of the fastest growing components of the high technology sector. It has had a significant impact on higher education. Currently most schools in developed nations provide Web access in the classroom. Based on these trends it is important for policy makers to consider the potential value of e-learning to prepare and update the skills of teachers so that they may, in turn, help prepare students with the skills needed to be successful in the 21st century economy.

The use of e-learning for teacher development, however, raises important issues for governments and academic institutions related to policies, funding, instructional practices, research needs, technical infrastructure, and support. In response to many requests for a balanced discussion of the possibilities and issues related to e-learning and teacher development, UNESCO has commissioned a book to assist decision-makers in ministries of education, faculties of education, and schools in understanding key issues, strategies, and new approaches in the use of e-learning for teacher development.

Four categories of e-learning emerge within the dimensions of content and communication including:

- **Accessing information repositories for learning:** There are vast resources available on the Web to support teaching and learning. Many universities are making their course material available to others and there is a growing movement to the development and sharing of open educational resources. Google and the French government have announced major initiatives to digitize millions of books and make them available on the Web. Despite these important efforts there is a lack of local and culturally appropriate content in digital form for many indigenous and marginalized peoples across the globe.
- **Participating in courses via the Web:** There has been exponential growth in the offering of online courses and degree programs by higher education institutions. At present there are approx. 60,000 courses listed on Web. There is increased global exchange of virtual courses and programs among universities. There has also been rapid growth in online teacher education

courses and degree programs to address educational development needs of rural, isolated communities. The Web has the potential to provide professional development opportunities for existing teachers and to be an important resource in the preparation of new teachers.

- **Blended learning:** This involves the use of the Web with regular classroom-based learning. In a blended learning environment, students use online resources and tools and also meet face-to-face on campus as members of the same class or program. Types of blended learning activities include:

- integration of Web-based resources and tools in one's teaching;
- production of Web pages for one's classroom; and
- use of online follow-on forums, discussions, and collaborative activities.

- **Networked Communities:** This involves the development of virtual communities of practice and knowledge-building communities among teacher educators and preservice and inservice teachers. The new online environments and tools for collaboration enable teachers to work together to solve problems and share knowledge, expertise, and materials. They may also work online to co-construct knowledge, content, and learning materials and resources. It often serves as an effective means of supporting teachers and other experts in developing local culturally and linguistically relevant content.

Essential Conditions

Although e-learning may represent a powerful tool to support teacher development, successful implementation of this mode of learning requires careful planning and consideration of a number of important factors. These include:

- Shared Vision;
- Access to resources of e-learning;
- Skilled Teacher Educators;
- Collegial support and Professional Development;
- Technical Support;
- Content Standards and Curriculum Resources;
- Student-Centred Teaching;
- Evaluation of implementation of e-system;
- Support Policies and follow up.

Shared Vision

When any new educational innovation is implemented, problems arise when there is a lack of understanding and commitment to the goals and implementation of the innovation. The

infusion of e-learning into teacher development is an innovation that represents a significant change from current practices. Such a change cannot be accomplished without the full support and understanding of policy-makers, ministry officials, university administrators, teacher educators, school administrators, teacher training agency staff, telecommunications companies, and other stakeholders.

Access to resources of e-learning

In order for e-learning to be a viable means of supporting and enhancing teacher development teacher educators, trainers, and pre-service and in-service teachers must have access to hardware, connectivity, and high-quality culturally relevant software. Access to such resources represent necessary but not sufficient conditions for the successful use of e-learning as an effective means of teacher development. Access to hardware and connectivity have presented the greatest challenges to developing countries because of the high costs of equipment and the lack of telecommunications infrastructure to support the use of e-learning in rural or remote areas. There are several important technological developments and trends that will make e-learning an increasingly more attractive and feasible possibility. The increasing capabilities of hardware have made computing power increasingly affordable, and there are efforts underway to make computers more affordable to developing countries.

Although connectivity remains a major challenge for developing countries, there are remarkable changes that are taking place in this arena also. The advent of wireless technologies has resulted in an explosion of growth in the use of wireless communication devices in developing nations.

As noted by The Secretary-General of the United Nations:

Wireless technologies have a key role to play everywhere, but especially in developing countries and countries with economies in transition. With considerable speed and without enormous investments, WIFI can facilitate access to knowledge and information, for example by making use of unlicensed radio spectrum to deliver cheap and fast Internet access. Indeed, it is precisely in places where no infrastructure exists that WIFI can be particularly effective, helping countries to leapfrog generations of telecommunications technology and infrastructure and empower their people. (Annan, 2003)

It is clear that the lower cost of hardware and the remarkable gains in wireless technology present new opportunities for developing countries to explore and pilot the use of e-learning to accelerate educational development.

Skilled Teacher Educators

For e-learning to be an effective teacher development tool, it is essential that teacher trainers, teacher educators, and faculty who teach general education courses are themselves skilled in and model the use of e-learning in their own teaching practices. They must be able to integrate online resources into their courses, demonstrate ways the Internet may be used to provide or enrich learning opportunities, and help build online communities of practice. Teacher educators and trainers must also model culturally relevant pedagogical strategies that are based on the growing body of knowledge about how people learn. Mentor and supervising teachers must also be skilled in the use of e-learning so that they can model its use to enhance the learning of their students.

Collegial Support and Professional Development

Teacher education faculty, university faculty teaching general education courses, teacher trainers, and supervising teachers need high quality professional development. To achieve the best results, professional development should be rigorous and sustained over time. The mastery of e-learning and technology integration requires repeated cycles of professional development that keep pace with advances in technology and research.

Collegial support is also key in learning the use of the new tools and resources that e-learning can provide. Online communities of teacher educators, teachers, and student teachers can be powerful tools for supporting ongoing professional development. Providing online access to colleagues who use the same technology, participate in the same professional development activities, or use the same pedagogical approach can be of enormous benefit to teachers. Online communities can also support colleagues who teach the same subject matter or work with similar groups of students. Lastly, networked communities can provide pre-service or in-service teachers access to colleagues with advanced expertise, who can contribute to the collective knowledge of the professional community. Sharing problems and successes via discussion groups can give members the confidence to reflect on their own teaching practices and those of their institutions.

Technical Support

Teacher educators and preservice and inservice teachers will need timely technical assistance and support as they learn to apply e-learning in their teaching practices. The teacher educator or mentor teacher should be focused on the teaching-learning process, not on maintaining or repairing hardware, software, or networks. When technology failures occur and are not quickly addressed, teacher education faculty may feel anxious about using e-learning in

their instruction. Over time, the lack of technical support may seriously degrade or reduce the use of e-learning in teacher development.

Content Standards and Curriculum Resources

Teacher educators must be knowledgeable in the content and standards of their discipline so that they can help preservice teachers use e-learning in powerful and meaningful ways in the context of teaching the curriculum. Effective Internet resources must be identified and strategic matches made with the prescribed curricula. Much of the educational content currently on the Web is in English and reflects a Western European cultural perspective. An essential condition for the effective use of e-learning is that there must be access to high quality, culturally relevant content. Although it may not provide such content, the Web can be a powerful tool for teacher educators, teachers, and others to develop and share content that meets the cultural, linguistic, and educational needs of their nation's educational system.

Student-Centered Learning

Much has been learned from an extensive body of research over the years about how people learn. E-learning is most effective as an enhancement to the teaching-learning process when coupled with contemporary and culturally responsive pedagogical strategies. Student-centered learning results from the effective synthesis of content and pedagogical and technology knowledge and skills.

Knowledge of pedagogical strategies is important, but it alone is not sufficient to effectively apply e-learning. It must be coupled with content knowledge. Student-centered learning requires that teachers understand the many faceted relationships between content, pedagogy, and technology to harness the power of e-learning to create engaging and more responsive learning environments.

Evaluation of implementation of e-system

The successful implementation of e-learning for teacher development requires continual assessment and evaluation of all aspects of the implementation. The ongoing assessment will provide data:

- on the effects of e-learning on teaching and learning outcomes;
- needed to enable policy-makers, ministries of education staff, university administrators, teacher training agencies, schools, and others to monitor progress toward the achievement of the vision and goals for e-learning in teacher development; and
- to identify problems or difficulties encountered so that they can be quickly addressed to reduce their impact on the implementation process.

Support Policies and follow up

The use of e-learning for teacher development provides an opportunity for policy-makers and administrators to carefully consider existing policies to determine the extent to which they support or impede the successful use of e-learning. Policies related to accreditation, standards, budget allocations, and personnel decisions in teacher development programmes should support the use of e-learning. Policies for merit, tenure, and promotion should reward the innovative and effective uses of e-learning for teacher development. Policies related to the security of computer networks and the appropriate use of e-learning tools and resources may need to be established or updated to support the implementation. Policies related to hiring practices should include guidelines describing the desired technology skills of new employees.

Recognition of each of the conditions essential for the effective use of e-learning for teacher development will be helpful in guiding the planning and implementation process. Although it will not be possible to meet all of the conditions in the early phases of the implementation process, they will continue to serve as a reminder and guideline of what is needed and what must be addressed over time, so that the vision and goals for e-learning can be achieved.

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