

**INTERNATIONAL
JOURNAL
OF
INSTRUCTIONAL
TECHNOLOGY
AND
DISTANCE LEARNING**

September 2004

Volume 1 Number 9

Publisher

Lawrence Tomei Ed.D.
Duquesne University

Editorial Board

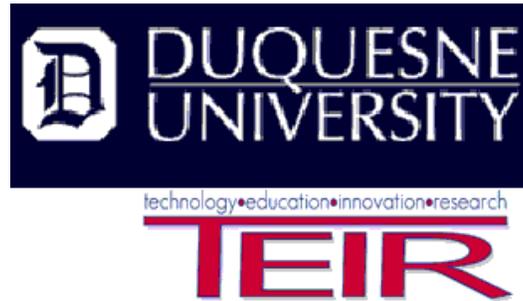
Donald G. Perrin Ph.D.
Executive Editor

Stephen Downes
Editor at Large

Brent Muirhead Ph.D.
Senior Editor, Online Learning

Elizabeth Perrin Ph.D.
Editor, Synchronous Learning Systems

ISSN 1550-6908



PUBLISHER'S DECLARATION

This Journal was established to facilitate collaboration and communication among researchers, innovators, practitioners, and administrators of education and training programs involving technology and distance learning.

An academic institution, Duquesne University, was chosen for its commitment to academic excellence and exemplary programs in instructional technology and distance learning. Duquesne University is supporting the Journal through its graduate program in Instructional Technology and its Center for Technology Education Innovation and Research (TEIR Center). In addition to its educational programs, Duquesne University has major training contracts for industry and government.

The Journal is refereed, global, and focused on research and innovation in teaching and learning. Duquesne University and its partner, DonEl Learning Inc., are committed to publish significant writings of high academic stature.

Lawrence A. Tomei, EdD
Executive Director, Center TEIR

**Additional information for authors, sponsors, and readers
is on the Journal webpage at
<http://itdl.org>**

International Journal of
Instructional Technology & Distance Learning

Vol. 1. No. 9. ISSN 1550-6908

Table of Contents – September 2004

	Page
Editorial: Ten Years Ago	1
Donald G. Perrin	
Information and Communication Technologies for Women Empowerment: South Africa's Unfinished Agenda	3
Lebusa Monyooe & Steve Ledwaba	
Learning Objects: A Practical definition	21
Rory McGreal	
The Study of Distance Education by Distance Education	33
Nathan K. Lindsay and Scott L. Howell	
Beta Testing Online Staff Development for Implementation at Scale	41
Edward L. Meyen, Ronald J. Aust and Chien Yang	
Online professional development in support of online teaching: Some issues for practice	55
Karah Hogarth, Ingrid Day, and Drew Dawson	
Online Debate: A case study of combining traditional strategy and online technology.	65
Shawn M. Love	
Writing Advice for Today's Online University Students	73
Brent Muirhead	

Editorial: Ten Years Ago

Donald G. Perrin

Professionally, what were you doing ten years ago? And what relationship does that have with what you are doing today?

Ten years ago I was immersed in the Silicon Valley, the hub of creativity and innovation in computer hardware and software. I directed the Alquist Center for Innovative Learning at San Jose State University and taught Instructional Design, Interactive Video, and Theory of Instructional Technology for the Graduate Program in Instructional Technology. Our students included leaders in instructional design, training and education, seeking new ideas and academic qualifications. They shared their expertise and learning was exciting. Together we attended meetings of the International Society for Performance and Instruction (ISPI) and the International Interactive Communication Society (IICS) at Hewlett Packard, Apple Computer, and the Exploratorium. I served as instructional design consultant and trainer for business, industry and government.

My wife Elizabeth managed programs in Total Quality Management and ISO 9000 for industries in the Silicon Valley as part of the School of Business and the Television Education Network at San Jose State. Courses were taught live on ITFS television to local industries and regional centers. They were also available on videotape. Patrick Portway, founder of the TeleCon series of International Conferences, offered us managing editor positions with ED at a Distance Magazine and ED Journal starting in January 1995. (We continued in this role to 2003. In the late 1990s these publications became USDLA Journal, a hybrid of print and web, and a totally online journal in the year 2000.)

Another aspect of activity in the Silicon Valley was with incubators and startup companies. I collaborated with Vital Pathways of Mountain View California on a proposal for ISDN lines from the telephone company for San Jose State University. We quickly discovered we were not telephone engineers, but a byproduct of our research was a plan for a new kind of University, the *University of the Future*. We published this paper in our second issue of ED Journal in February 1995. It received a large mail response and was published in its entirety on the front page of *The Nation* newspaper in Bangkok, Thailand. Andrew Crilly was sent from Ngee Ann Polytechnic in Singapore to engage us for three weeks of consultation. UNESCO brought me to Bangkok three months later to keynote their conference *New Knowledge Society and Higher Education*.

Ten years later basic ideas from the *University of the Future* are part of almost every institution of higher education in the industrial nations and in the third world and are increasingly a part of K-12 and home schools. This is not to say I invented it. The paper was a fusion of many different ideas that were developing in the mid 1990s that were developed independently.

To answer my own question: September 1994 was a very exciting period in my professional development. Today is an extension of that past into a future even more exciting and challenging than ten years ago. The landscape is greatly changed. In ten years the technology is greatly refined, inexpensive and ubiquitous. The focus has moved from television to interactive web, and from communication technology to curriculum, learning objects, and customized (individualized) education programs. We are poised for a whole new era of creative development in education and training and I am ready to play my part.

Editor's Note: This paper describes a detailed plan to create a sustainable economy in South Africa by empowerment of women to participate in science, technology and engineering with specific emphasis on *Information and Communication Technologies* (ICT). UNESCO and the World Bank are assisting similar movements in many countries, including China, to enable these countries to be competitive in the global economy.

Information and Communication Technologies for Women Empowerment: South Africa's Unfinished Agenda

Lebusa Monyooe & Steve Ledwaba

ABSTRACT

The discourse about Information and Communications Technologies (ICTs) has been branded as a fashionable, powerful and widespread strategy to align the emerging technologies to the global socio-economic imperatives and dynamics. In his address to the Growth and Development Summit, President Mbeki argues that

“In crafting the Bill of Rights, the followers of our democracy knew too well that political rights without a socio-economic foundation would be unsustainable. They knew that a political settlement without an enduring contract among the role-players for growth and development would in time collapse on a foundation of sand”.

The emergence and proliferation of ICTs lends itself into the category of the rights and challenges that the President alluded to. With globalization increasingly impacting on business and other sectors of the economy, the scope for competition is no longer limited by national boundaries. The emergence of the ICTs has significantly influenced the global discourse on social and economic development in many ways. In the first instance, the need for developing countries to optimize use of ICTs for sustainable socio-economic development has become a permanent agenda across the globe.

Secondly, given that women constitute a larger percentage of the global population, it is mandatory that they (women) should be empowered in ICTs so that they can play a decisive role in the creation of sustainable world economies. This paper discusses the challenges impeding women empowerment in ICTs. It concludes by identifying plausible strategies and approaches that can be pursued to fast-track capacity building and optimization of women participation in ICTs initiatives

Introduction

The proliferation and development of science and technology has substantially contributed to among other things, knowledge construction, technology transfer and the diversification of global economies in general. Furthermore, it has created a plethora of scenarios namely:

- upsurge of interest to revolutionize science and technology to address poverty and job creation
- creation of entrepreneurial initiatives and

- possibilities for sustainable growth and development to mention but a few.

The importance of the scenarios alluded above including the envisaged benefits and spin-offs is succinctly captured and articulated by the World Bank Policy Research Working Paper 3026 (2003):

Science and Technology (S&T) are critical inputs for economic development and poverty alleviation. Advances in scientific and technological knowledge made possible the significant reductions of poverty and improvements in the quality of life in both developed and developing countries throughout the 20th century. In the future, the ability of countries to access, comprehend, select, adapt, and use scientific and technological knowledge will increasingly be the determinant of material well being and quality of life. As a development institution, the World Bank can play an important role in helping its clients use science and technology for development.

The expositions of the World Bank Policy on science and technology form an integral part of the discourse on globalization, technology and diversification of regional, national and international economies. Arising from such a discourse is the question of how science and technology can be optimally harnessed to transform and change the lives of the ordinary citizens of the globe. South Africa like other developing nations has to be at the cutting edge of global discourse, especially in science and technology. The power of science and technology in social and economic development is arguably expressed by Watson et. al. (2003:5):

Science and technology are intimately connected with development because: (i) they have a historical record of bringing advances that have led to healthier, longer, wealthier and productive lives and (ii) they are key ingredients to solutions to the most serious poverty alleviation and economic development challenges that we currently face and are likely to face in the future.

The thesis of Watson et. al. (2003) is central to the globalization discourse and thus locates capacity building as an integral part of the discourse. The enormity of globalization and possibilities for latching on science and technology has further been acknowledged by the United Nations' Secretary General, Kofi Annan (2000) in his Millennium Report: *We the Peoples: The role of the United Nations in the 21st Century*. He makes pertinent observations about the politics of globalization and the need to popularize the discourse:

How can we say that the half of the human race which has yet to make or receive a telephone call, let alone use a computer, is taking part in globalization?... We need to get our member states working together on global issues... (grouped) under three headings, each of which I relate to a fundamental human freedom-freedom from want, freedom from fear, and freedom of future generations to sustain their lives on this planet... In short, we need a new ethic of stewardship. We need much better informed public... And we need more accurate scientific data. Above all we need to remember the old African wisdom which I learned as a child- that the earth is not ours. It is a treasure we hold in trust for our descendants... We are the service of the world's peoples... (Millennium Report, 3, April, 2000).

The cumulative relevance of what Watson et. al. (2003) and Annan (2000) alluded to above depends substantially on regional, national and international policy frameworks, particularly on resource provisioning and management. Developing countries need substantial funding to rehabilitate their infrastructure so that they can adequately optimize possibilities created by inexorable advance in technology. For South Africa to play a meaningful role in global politics tangible structures have to be in place to facilitate the transition to global politics and

optimization of technology. The relevance of such structures has to be perceived in terms of how they redefine the role and status of women in science and technology.

Legislative Framework: Affirming the rights of women

The South African Constitution as the supreme law of the land guarantees the following critical values of democracy:

Heal the divisions of the past and establish a society based on democratic values, social justice and fundamental human rights;

Lay the foundation for a democratic and open society in which government is based on the will of the people and every citizen is equally protected by law;

*Improve the quality of life of all citizens and free the potential of each person.
(Constitution of South Africa, Act No 108, 1996).*

The affirmation of women rights and freedoms is an integral part of transformation process that South Africa has embarked upon since 1994. The proliferation of Information Communication Technologies (ICTs) places the majority of women in a precarious situation in many ways. In the first instance, the apartheid policies did not create adequate conditions for developing the capacity of women in general. Secondly, as a consequence of discrimination women could not benefit from development policies, especially access to technology in its diverse forms. In its attempt to address the notion of capacity among women, the South African government embraced dialogue with national and international organizations on women rights and freedoms. It was through such interactions that tangible legislative frameworks were promulgated to legitimize the transformation processes. It was also to send a strong message to the international world that South Africa is committed to transform the apartheid policies and structures and reaffirm its commitment to improve the socio-economic welfare of the South Africans, particularly women.

It is for this reason that September 1995 remains a symbolic year for women in South Africa. It was during this period that South Africa participated for the first time in the United Nations series of World Conference on Women at the fourth Conference on Women in Beijing China. It was at the same Conference, that the South African government committed itself to the Beijing Platform of Action (BPA) and Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). To operationalize the BPA and CEDAW mandate, the South African government set in place an interim structure with the Department of Welfare and Population Development as the caretaker of the National Gender Programme. Through robust interrogations and commitment by various government departments, the Cabinet approved the establishment of the Office on the Status of Women (in the presidency) and the Commission for Gender Equality, a statutory body funded by but independent of the government. These structures are intended to advance the rights of women across the various sectors of the society.

South Africa's commitment to champion the rights and freedoms of women is further demonstrated by the enactment of laws, policy formulations and promulgation of bills by the parliament:

- The adoption of a new Constitution for the Republic of South Africa. Of direct relevance to gender equality is the Bill of Rights
- The Reconstruction and Development Programme
- The White Paper on the Transformation of the Public Services
- The adoption and commitments to the implementation of the Beijing Platform of Action at the February 1996

- The White Paper on Affirmative Action in the Public Service
- The Employment Equity Act
- The Promotion of Equity and Prevention of Discrimination Bill
- Recognition of Customary Marriages Act
- Skills Development Act
- South Africa passed CEDAW in 1995
- Human Rights Commission Act, 1994 (Act 54 of 1994)
- Commission on Gender Equality Act, 1996 (Act 39 of 1996)
- Divorce Amendment Act 1996 (Act 95 of 1996)
- Maintenance Act, 1996 (Act 99 of 1998)
- Domestic Violence Act, 1998 (Act 116 of 1998)
- Health Care to pregnant women and children
- Labour Relations Act of 1995
- Basic Conditions of Employment Act of 1997 (Act 75 of 1997)
- Employment Equity Act of 1998 (Act 55 of 1998)
- Termination of Pregnancy Act (Act 92 of 1996)

The presence of well articulated legislative frameworks is crucial in many ways. Firstly, it is to affirm South Africa's political will and commitment to transform and advance the socio-economic welfare of women in general. Secondly, to send out a strong message to the global community not only about the need to uphold the Rights of women but most significantly creating conditions to harness the power (potential) of women in global politics. The dynamics of harnessing women's potential in national and global politics forms an important part of South Africa's socio-economic strategy. For South Africa to participate competitively in global economies it must have adequate human capital. For instance, capacity development must form an integral part of the national strategy for development. As part of the global drive to affirm women issues, Maurice Strong, the Secretary General of the 1992 Earth Summit, argues:

There is a pressing need to continue to centralize women's issues and to ensure the incorporation of their collective perspectives, experiences and contributions to sustainable development. The implementation of the programme areas of Agenda 21 which extensively incorporates the important role of women in sustainable development will help to meet this need. (UNIFEM, 1993).

In her articulation of the significance of mainstreaming gender issues Dankelman (2003: 17) argues that:

Good governance not only includes transparency, democracy and respect for human rights, institutional capacity and resources, but it also has major gender implications. Among these are equal participation of women at all levels, their access to education, training, employment and benefits, as well as the use of gender-differentiated methodologies and instruments...Gender mainstreaming is not simply a question of more women in decision making ...in...development sector. It also means that institutional mandates, policies and actions are shaped by gender perspectives.

Dankelman (2003:29) further argues:

Once aware of their own situation and position, women often establish or become members of women's organizations and coalitions. As a common effort these organizations promote the empowerment of women. Such organizations play an important role in promoting integration of into sustainable development, and act as agents of change in transforming the mainstream.

Attempts to mainstream women and gender issues have to be anchored on a sound policy framework. As indicated above South Africa is richly endowed with plausible legislative frameworks to advance the rights and aspirations of women. Furthermore, the advancement of women and gender issues is dialectically related to the national strategy for research and development. In this instance, South Africa has a well articulated National Research and Development Strategy that can be used to accelerate research on women's issues and development in general.

National Research and Development Strategy (NRDS)

Research in its diverse forms is an integral part of socio-economic development and should be provisioned and sustained to meet national imperatives and ensure international competitiveness. Both structural and human resources are required to engage in research activities and initiatives. Organization and management of these critical resources often proves complex and problematic. Challenges associated with research based activities are succinctly captured in the World Bank Policy Research Working Paper (2003:13) as follows:

Promoting research quality is a delicate institutional balancing act. Some issues are general and affect tertiary education and research institutions of all types. These pertain to the quality of faculty, the relevancy of curricula, the adequacy of physical resources, the flexibility and autonomy of institutional management, the sources and stability of financing. A major challenge facing developing countries is how they can meet the growing demand for tertiary education while simultaneously improving quality and relevance, within shrinking public budgets.

The notion of delicacy alluded to above, does not only apply to quality research promotion and capacity building. It is central to the gender and inequality discourse especially about women and ICTs. The discourse about women and ICTs in South Africa has to be underpinned by a rigorous understanding of the apartheid legacy. Of relevance here is a clear understanding of the impact of apartheid policies on socio-economic development. Of particular significance is the recognition that apartheid laws had serious consequences on information and communication technologies. The cumulative impact of the policies and practices alluded to above was greatly felt by women. The political changes in South Africa yielded tangible transformative policies targeted at redressing the apartheid legacy. Part of the transformative strategy is demonstrated by South Africa's active participation on global issues.

Of great relevance for South Africa particularly science and technology is the adoption of the National Research and Development Strategy (NRDS). The relevance of the NRDS is described as follows:

The publication of this strategy represents a milestone for the National System of Innovation in South Africa. It coincides with the establishment of the Department of Science and Technology, which will be charged with giving effect to this strategy. However, a more effective innovation system is a partnership developed between all institutions involved in creating new knowledge, producing innovations and diffusing them to the benefit of the people of South Africa and our region. (NRDS 2002:5).

Both publication and adoption of the NRDS is of great relevance for South Africa in many ways. In the first instance, it is an acknowledgement of the power of science and technology in social engineering. Secondly, it is an open invitation for South Africans and institutions of higher education to invest in research that uses technology to transform the socio-economic welfare of the South African citizens. The NRDS is anchored on three critical and overarching objectives, namely (i) achieving mastery of technological change in our economy and society (Innovation) (ii) increasing investment in South Africa's science base (Human Capital and Transformation) and (iii) creating an effective government science and technology system (Alignment and Delivery)

Arising from the NRDS, four key drivers that underpin the operationalization of the strategy are (i) innovation (ii) human capital and transformation (iii) alignment and delivery. Of relevance here is the need for South Africa to invest more resources in science and technology to enhance global competitiveness. This would benefit the nation in many ways. Firstly, it would revolutionize public perceptions about technology thus break the barriers to technology advancement. Secondly, it would increase the business value of the country. Thirdly, it would enhance the principles of international competitiveness, knowledge construction, technology transfer and application.

The relevance of technology development is acknowledged by Bennett (2002:4-5) who writes:

Of course, being skilled in a global economy is not simply about knowing how to use new technology. It also concerns knowing how to solve problems, learn new things, work on a team, communicate, and locate, evaluate, and act on information. But, ultimately, it may be most about combining those more traditional skills with technological ones to get work done.

What Bennett postulates touches on one of the fundamental drivers for social development, namely the use of technology for socio-economic empowerment. The significance of what Bennett alludes to is incidentally linked to the goals of Millennium Declaration 2000, signed during the United Nations' Millennium Summit. The Millennium Declaration commits the United Nations' member states to 'promote gender equality and the empowerment of women, as effective ways to combat poverty, hunger and disease and stimulate development that is truly sustainable'. The Millennium Declaration is an affirmation of the progress made on gender and equality since the Beijing Platform for Action in 1995. It further reinforces the aims of the Convention on the Elimination of all Forms of Discrimination Against Women adopted by the UN General Assembly in 1979.

Gender and equality form an important category of challenges that South Africa is grappling to redress. The development of new technologies and their application to social contexts offers possibilities for redress and growth. The importance of ICTs for social development is acknowledged by Marcelle (2000:8) ICTs who argues:

Information and communication technologies (ICTs) comprise a complex and heterogeneous set of goods, applications and services used to produce, distribute, process, and transform information. They include the outputs of industries as diverse as telecommunications, television and radio broadcasting, computer hardware and software, computer services and electronic media (e.g. the internet, electronic mail, electronic) commerce and computer games.

Of relevance here is the notion of how ICTs could be used to address women and gender issues. Gender inequality is one of the major challenges facing developing nations, as a consequence of patriarchal system of social engineering. Through various initiatives, the World Bank has attempted to make resources available to address women and gender related issues. It has also

embarked on creating public awareness on how technology can be utilized to liberate the status of women in global economies. Huyer and Sikoska (2003:1) comments clearly elucidate the potential of technology:

ICTs may reshape, reorganize and restructure working methods. They offer generic advantages of: efficiency and productivity gains, information-sharing, storage, and communication; faster knowledge accumulation, dissemination and application; in support of the specific purposes for which they are used...enabling rapid and continuous transfer of commercial, financial and political information crucial to the development process. Yet ICTs are neither a panacea for development nor a replacement for real world processes.

Huyer and Sikoska further argue that “The continuous development of new technologies and their application to economic, political and social processes is creating new opportunities that could enhance the quality of human life”. (p1). The position of women in socio-economic discourse has to be understood within the paradigm of patriarchy and patriarchal structures and practices. In patriarchal communities the status and role of women is influenced by patriarchal values and principles. Generally this leads women to assume subordinate and powerless positions. Of relevance here is the extent to which women’s rights and freedoms are undermined and compromised. The patriarchal practices do not consider building capacity and empowering women as a priority.

ICTs and Capacity Development: Some Reflections

The capacity of ICTs to transform information and knowledge construction has been acknowledged by Huyer and Sikoska (2003). Of relevance is the extent to which ICTs can effectively transform the status of women within the patriarchal communities by granting them an opportunity to experience the locus of power and decision making. Creating opportunities for women to participate in decision making is an integral part of the empowerment discourse. According to Oxaal and Baden (1997) as cited by Huyer and Sikoska (2003:3) women empowerment has been described as:

...a process through which women gain power over men or as a process that enables women to gain access to decision making process and instances of power. Increasingly though, empowerment tends to be viewed as a process that leads women to perceive themselves as capable of undertaking decisions and making choices about their lives, which in turn requires sufficient levels of self-confidence and assertiveness. Empowerment, therefore, necessarily embodies challenging patriarchy at all its levels of expression: social structures and relationships, moral and cultural values and norms, and institutions and power structures.

The exponents of the empowerment discourse perceive it as a plausible strategy from which social engineering and transformation can effectively be anchored. Moser (1993) conceptualises empowerment within the strata of “strategic gender needs”. She argues that “strategic gender needs” include socio-political and economic issues, legal rights and other civil virtues. She argues further that by addressing these generic needs enables women to acquire capacity to challenge the status quo and thus reshape the balance of power between women and men within communities and institutions. Evidence gleaned from literature confirms that women can no longer ignore the power of ICTs and the globalisation of information and economies (Carr and Huyer, 2002; Prahalad and Hammond, 2002; Knight *et. al.* 1995; UNESCO, 2001; Sikoska *et. al.* 2000; Hafkin 2002).

Hafkin's (2002) research and analysis of the infoDev projects is of relevance here in many ways. Firstly, it confirms that women benefited tremendously from the ICTs exposure and training. Secondly, the knowledge and information gained enable these women to chart their career paths in ICTs such as internet networking, data gathering and management etc. The exponents of the use of ICTs for women empowerment (Martinez and Reilly, 2002) as cited by Hoyer and Nikiski (2003:6) argue:

Access to public information through ICTs is a key ingredient for e-democracy and women's empowerment; yet, individual "access" to ICTs alone does not necessarily ensure that the technology will be used by women for their empowerment. Rather, the possibility of "access" can only become advantageous for women if they are organized and as such are capable of determining: a) the type of information they need, b) the way that information is presented and c) the concrete means required for that information to be accessed and used.

Similar observations regarding the relevance of empowerment have been made by Dust (1991), Short and Rinehart (1992), Midriff (1988) and Lightfoot (1995) who argue that empowerment as a capacity building strategy gives institutions an opportunity and ability to redress and operationalize programmes and strategies that will accelerate meaningful social change and development. This is crucial for South Africa, especially with regard to questions of redress, equity and equality in the socio-economic and political sectors. The majority of the women in this country lag behind in this respect and this has serious economic and global implications. Improving the socio-economic stature of women demonstrates visionary planning and a long-term strategic investment. The cumulative spin offs derived from such a process of empowerment are succinctly captured by Cutterbuck (1995:12-13):

Encouraging and allowing individuals to take personal responsibility for improving the way they do their jobs and contribute to the organisation's goals. It requires the creation of the culture which encourages people at all levels to feel they can make a difference and helps them to acquire the confidence and skills to do so...creating the circumstances where people can use their faculties and abilities at the maximum level in pursuit of common goals, both human and profit oriented.

Cutterbuck further argues that creating opportunities for personal empowerment involves putting authority, responsibility, resources and rights at appropriate levels for diverse tasks and challenges. In this regard, he perceives empowerment as a psychological drive that enables human beings to change their attitudes and formulate new ways of changing the status quo. The resonance of Cutterbuck's thesis is further reinforced by Bolin (1988), who argues that for a meaningful change to occur there is need to change the mind set and the supporting infrastructure to give meaning and impetus to the transformation and empowerment processes.

What post-apartheid South Africa needs is a drastic and sustained reconstruction of the social milieu to engender democracy and other civil virtues including the optimisation of resources to address the plight of women in general. By using this approach, South Africa can ultimately conquer the legacy of apartheid which Nkomo (1990:295) describes as a 'policy of benign neglect...that promotes compulsory ignorance'. If on the other hand, we acknowledge and recognise education as an effective strategy to empower people with knowledge, skills and other forms of competences. It is obvious that the majority of women in South Africa need exposure to diverse forms of education. As a consequence of the global politics and the ever changing economic challenges, women would benefit immensely in Information and Communication Technologies (ICTs). The *raison detre* for an accelerated campaign and programme for women's empowerment in ICTs is to create a pool of human capital better equipped and mentally attuned to deal with the challenges of access, equity and equality across the socio-economic domain.

It seems appropriate that at this transitional phase South Africa needs a more empowered and enlightened human capital to promote the young democracy. The envisaged spin offs that can be derived from optimising possibilities for women empowerment are varied and relevant to a plethora of challenges that the country ought to overcome both nationally and globally. The following are the overall benefits that can be derived from the institutionalisation of empowerment initiatives:

Empowerment as an enfranchising strategy within the strata of power and decision making

The apartheid laws disenfranchised majority of the South Africans from playing an active role in the political and socio-economic affairs of the country. Women are the most affected members of the population. Women are often excluded from the locus of power, authority and decision making. This has serious implications both on their personal growth and scholarship. It further undermines the notion of civil rights and freedoms. But most importantly it deprived women in academia the opportunity to explore their abilities as transformative intellectuals to interrogate issues of national significance. The demise of the apartheid legacy presents academics, particularly women, with a plethora of challenges and possibilities. In first incidence, the legislative framework affords them an opportunity to be enfranchised and play a meaningful role in shaping the research agenda in ICT and other related fields. Through the existing legislative framework, they can negotiate for the devolution of power and authority so that they can influence the operational and decision making frameworks.

Empowerment as an enabler to engage bureaucracy and other forms of encroachment

Generally organisations have distinct operational frameworks and strategies to allocate responsibilities. Such articulations are often underpinned by subtle power relations that serve the needs and aspirations of those within the locus of power and decision making. Invariably, rules and other operational imperatives exist to justify conformity and at times perpetuate top-down management strategies. The top-down management often gives those in positions of authority excessive decision making powers. For instance, in Apartheid South Africa, the state through its various arms of authority usurped civil virtues to entrench and perpetuate policies of segregation and marginalisation. The consequence of this practice translated into excessive bureaucracy and the tendency to prescribe how organisations must function. Through the process of empowerment, women researchers would be able to function as effective intellectual vanguards of their professions, disciplines, institutions and the nation at large. They can harness their academic power to influence decisions on issues affecting women in general.

Empowerment Nurtures ownership and accountability

During the apartheid era, the power to implement policy and organisational changes resided with the state machinery to the exclusion of other potential role-players. This created an intense power struggle between the state and the various stakeholders in general. Since the creating of opportunities for empowerment was also based on racial segregation, the majority of the population suffered in this regard. The challenge now is to make facilities available for training and development of women in particular. The relevance of empowerment endeavours is arguably captured by Carl (1995:7) who writes that empowerment as an enabling strategy gives the empowered '...freedom with responsibility because a purpose is pursued'. What Carl articulates is relevant in that ignites collective engagement which is crucial to forge the culture of ownership regarding policy and praxis. When institutions create a conducive environment for staff to engage in policy issues, it affirms their role as important members of such institutions. It invariably unlocks the professional competencies of the staff and gives them confidence to initiate collaborative research ventures to address national challenges.

In his analysis of the RDS President Mbeki, acknowledges the dialectical relationship that exists between investing in research and the overall benefits derived from such a process. The adoption of the RDS as a national strategy reinforces the centrality of research as a strategic framework to determine the national research road map. The new research and development strategy is underpinned by three pillars namely, innovation; science, engineering and technology (SET) human resources and transformation. Of these pillars, human resource development is critical towards optimising available capacities and skills to improve the socio-economic scales of the nation. The human rights issues form an important part of the restorative discourse in South Africa. Of relevance here is the huge emphasis the South African Constitution (Act No 108 of 1996) places on the Bill of Rights. The broad mandate of the Constitution is expressed in the preamble to:

- Heal the divisions of the past and establish a society based on democratic values, social justice and fundamental human rights
- Improve the quality of life of all citizens and free the potential of each person
- Lay the foundation for a democratic and open society in which Government is based on the will of the people and every citizen is equally protected by law and
- Build a united and democratic South Africa able to take its rightful place as a sovereign state in the family of nations.

The resonance of what the Constitution articulates forms an important part of the discourse on the need to affirm the rights of all citizens. The question of women and gender becomes quite pertinent in this regard.

South Africa's ICT policy and its implications on gender issues

According to the South African ICT Sector Development Framework (2000:1):

The Information Age is characterized by global competition based on a high level of information infrastructure with no geographic boundaries. One of the key trends of the Information Age is that of globalization, the ability to access world wide resources through innovative technological applications...

It is the scenario outlined above that requires South Africa to optimize its participation in the global markets. Of particular relevance in this regard is the country's adoption of the Growth, Employment and Redistribution (GEAR) programme. Through the GEAR programme, the government hopes to create sustainable economic growth, social upliftment and the general empowerment of the South Africans. To achieve the fundamentals of the GEAR programme, the government instituted a project currently known as the South African Information Technology Industry Strategy (SAITIS) in 1995. The SAITIS was intended to bridge the global development gap and develop a robust, growing and sustainable South African ICT Sector that supports the GEAR policy and frameworks.

The impact of the ICT on global economies cannot be ignored. It has led to a proliferation of technology and utilization by the business sector, individuals and communities in general. The proliferation of technology and its usage can be categorized into these ICT trends (i) internet (ii) infrastructure and application (iii) globalization and deregulation (iv) business models and (v) ICT sectors and social infrastructure

Development in ICTs has greatly transformed interaction between the various sectors of the government and the public in general. Access to technology has also created opportunities for generating solutions to socio-economic problems. Of particular relevance here is the steady

growth and progression towards the adoption of ICT utilization by business, government and consumer sectors. According to the South African ICT Sector Development Framework (2000:14), the country already has an established ICT Sector comprising (i) a small number of thriving indigenous companies, some of which have achieved multi-national status (ii) Several State Owned Enterprises (SOEs) that are major players in the ICT Sector (most notably Telkom SA) (iii) a growing base of ICT SMMEs; and (iv) a number of foreign –owned multi-national enterprises (MNEs) that have established a presence and business relationships in South Africa.

The impact of the human capital is well articulated by SAITIS that:

Human resources development is the most critical area that South Africa faces in the development of its ICT Sector and in stimulating ICT usage in other sectors of South African society ... South Africa is no different from other countries that have to deal with the global shortage of ICT workers, in particular, the global migration of the skilled workers. South Africa, however, faces the more profound challenge of educating, training and integrating a large proportion of its population who were previously denied the opportunity to move into the emerging information society (p16).

In its analysis of the South African policy on ICT, the National Advisory Council on Innovation makes the following pertinent observations:

Science and technology (S&T) policy in South Africa is based on the framework of a National System of Innovation (NSI), whose two prime functions are to deliver quality of life to citizens, and economic growth and wealth creation to the nation. S&T is crucial for achieving both, but the process by which such outcomes are delivered is neither trivial nor mechanistic. It is based on complex interactions that include: the people who work in science, engineering, and technology (SET), core innovation processes, and economic factors such as access to capital (including venture capital and tax incentives). (National Advisory Council on Innovation: South African Science and Technology Key Facts and Figures, 2002).

At the heart of the South African ICT policy is the question of creating a conducive environment for women to harness the technology for their social upliftment. South Africa's national policy is one of the few which are globally recognized to be gender-sensitive. ICT policy is therefore no exception. The White Paper on communications stressed the need to ensure gender equality in issues such as licensing, procurement and training (1996). The Telecommunications Act of 1999 which saw the establishment of Service Agency of South Africa provided a legislative framework which positively impacts on gender.

Without strategic interventions, sound policies often fall short with regard to implementation. The major setback of gender issues outlined in the White Paper is that gender has not been mainstreamed into the activities of regulators and operators. The reason for the setback is that the policy does not address issues of affordability. As a result, the policy benefits a relatively small percentage of women through their inclusion in their ownership and control of new companies or from increased employment or promotion opportunities in the telecommunications sector (Hafkin adapted from Gillwald 1999).

In getting to grips with the role of ICTs in advancing women empowerment, it is imperative that a distinction be made between Information technology (IT) and ICT. IT is comprised of hardware, software, networks, equipment and IT industries. ICT reflects the emphasis on communications aspects in recognition that communications is indispensable for connectivity and collaboration and that IT cannot function without it. The concept of ICT is therefore generally used as it is inclusive of all IT related aspects.

The emergence of ICTs poses critical challenges for developing nations in various ways. In the first incidence, it compels developing countries to reposition themselves through policy reviews and shifts. Second, it requires a huge financial investment in infrastructural upgrading and economic diversification. The impact of Science and Technology on economic diversification cannot be ignored. Global economies are inextricably linked to scientific and technological advancements. For instance, the outcomes of the Industrial revolution clearly demonstrate that countries advanced in science and technology increasingly become wealthy and succeed to sustain their economies. Watson *et. al.* (2003:10) make instructive observation when they write:

...perhaps most important from the perspective of the World Bank, technological capacity appears to be contributing to accelerated growth in some large developing countries (e.g ., China, India, Brazil, Mexico, Philippines, Thailand, Malaysia). High tech manufacturing exports have grown faster than all other categories and developing countries are gaining a larger share of this expanding trade. These developing countries, which are now benefiting from a combination of technological capacity, openness to trade and other comparative advantages (such as lower wages), are also experiencing accelerated rates of economic growth. What is more, the countries benefiting are home to over half the world's population, and more than half of the world's poor. Additional evidence (Dollar and Kraay, 2001) shows that incomes of poor people are rising proportionally with growth rates.

Of particular interest here is the position and status of women within the economy discourse. Gender imbalance is still rife within the disciplines of science, technology and engineering. This gender imbalance and brain drain are common features of the ICT labour market. ICT as a tool has the potential to enhance women's capacities in the areas of health and education, including access to other social services. Unfortunately, women are currently concentrated in lower-skilled ICT jobs related to data capturing, word processing, and manning telephone reception desks. A very small percentage of women are in managerial, training, networks and software and hardware design. The gender imbalance is an obstacle to the development of knowledge economy. WWW-ICT (2002) identified three factors affecting the gender imbalance in ICT profession:

Education and training. Women are under-represented among ICT students (intermediate and higher degrees), as well as in vocational training and lifelong learning initiatives. It is hoped that with the introduction of a new curriculum and other interventions at higher education women representation in ICT will see a drastic increase.

Working and employment conditions. The working conditions of many ICT professionals (working hours and rhythms, overlaps between private and professional life) are often not attractive. Voluntary working time arrangements are rare.

Culture. The dominant professional culture relies on male-dominated behaviours, values and expectations, such as ICT applications in daily life. The exclusionary culture of ICT work reinforces the structural factors that disadvantage women.

ICTs are important tools at the center of economic growth. Bringing women into the ICT mainstream and make them both beneficiaries and contributors to the process of economic growth are crucial for the well-being of our country.

Intervention strategies through ICTs

World Bank has been incorporating gender issues in its information and communication technologies projects. A project in Mozambique aiming at providing Internet access to colleges and universities and increasing women's access to higher education by using ICTs to teach is a typical example of such initiatives. According to World Bank reports, many national policies for

information and communication technology refer to situations facing rural areas and poor people and say little or nothing about gender. As a result, gender issues will probably not be taken into account when such policies are implemented. The outcomes of World Summit on the Information Society (WSIS) are in this regard expected to be geared towards encouraging the development of policies which address gender issues in ICTs among nations. One of the summit's challenges as outlined in the Draft Declaration of Principles is to "*harness the potential of information and communication technology to promote the development goals of the Millennium Declaration, namely the eradication of extreme poverty and hunger; achievement of universal primary education; promotion of gender equality and empowerment of women*". South Africa is considered one of the top countries in the world which have sound policies on gender issues.

Engendered national policies for information and communication technology can help women by increasing their (i) Access to and use of such technology (ii) Employment in information technology and related industries (iii) Opportunities to use e-commerce in small and micro-enterprises (iv) Access to health, education, and communication services and (v) Political participation and economic empowerment.

The role and significance of policy formulations has also been well documented by the World Bank:

Policies in areas other than information and communication technology can also be significant. For example, industrial and labour policies affect women's employment in the information technology industry, while education policies can promote women's science and technology education and significantly influence their preparedness to enter the labor market. Efforts to engender national technology policies should not only sensitize policymakers to gender issues, they should also sensitize gender advocates to technology issues (World Bank 2003).

An enabling environment which addresses equity in terms of the use of ICTs should be created. This should include ICT policies at national level that promote women's empowerment, as well as sectoral policies that have gender equality objectives. In South Africa, partnerships with various stakeholders including NGOs, Science Councils and industry have been forged. Multilateral and bilateral agreements with countries such as India, Unites States and United Kingdom have been signed. These efforts are in a bid to strengthen the development and utilization of technology which will ultimately encourage women participation as legislated.

Though gender equality is entrenched in the constitution, more rigorous interventions are needed to ensure conformance. To support women empowerment through ICT, the following interventions are suggested:

- Ensure the representation of women at all levels of ICT-related policy and decision-making processes within government, NGO's and private sector
- Increase existing funding mechanisms to support women's initiatives in ICT-based entrepreneurship
- Integrate ICT education in curricula based on gender equality
- Support by organizations and private sector for national education efforts by providing technical, training and financial assistance

As highlighted previously, the South African government in collaboration with NGO's and the private sector is engaged in the realization of these intervention strategies. There are however, questions which need attention in order to realize the objectives of the interventions (WWW-ICT). These are:

- How can models of education and vocational training in ICT be more attractive and inclusive for women, at both intermediate and higher professional levels?
- Which changes in employment strategies and work organization can lead to a wider participation of women in ICT professions?
- Which regulatory or institutional frameworks must be improved?

ICT status of women at higher education institutions

Analysis of gender in higher education is mostly concerned with looking at the proportion of women in certain positions and the implications of this distribution for women's career development rather than the field of expertise. Morley *et. al.* (2002) noted that gender equity is frequently reduced to strategies for transforming quantitative representation and participation, rather than an engagement with processes, power and dominant values. In a global context, Park (1992:237) as quoted by Morley *et. al.* concluded that "university women are about three times less likely to be professors than men when age and publication rate are taken into account".

In 1996 34% of instruction and research fellows were women. Universities accounted for 79%. Historically white institutions (HWI) employed 57% of women. Technikons, then historically black institutions (HBI) had a higher percentage of women than historically white institutions. In technikons there is a higher percentage of women professionals than in historically black institutions and in historically white institutions (Ndungane 1999).

These percentages cut across all disciplines taught at these institutions. The field of ICT has been dominated by men and as a result a very few percentage of the workforce at higher education is women. Within this few percentage, a further limited percentage of women are in positions of authority in ICT. The general lack of women in positions of authority is explained by Singh's three structural approaches:

- Person centered relating to psycho-social attributes
- Structure centered focusing on the social structure
- Culture centered which links gender and organizational structure

Singh argues that gender roles are carried into the workplace.

Way forward

Women's engagement and entry into research was seen as crucial stage in academic development. Ndungane (1999) noted that despite the fact that race and gender were areas of prime importance and that the situation has not changed that much since 1990. The situation is gradually improving due to more intervention efforts which have been introduced. Research activities are central to selection, promotion and institutional status.

Government through its R&D strategy has devised means to address the gender imbalance in ICT. Research institutions and Science councils (HSRC, CSIR etc) are continually developing programmes to address the imbalance. A government agency, the National Research Foundation has developed several ICT research programmes with a gender component. A typical example is the ICT Focus area which focuses on the need "to unlock the relationship between knowledge, technology, and the uniquely social and economic development South Africa faces".

Of equal importance is the recognition within the focus area that it is the combination of ICTs, knowledge and communication, which are essential resources for social and

economic development. While knowledge and communication have long been topics of social science research, in recent years ICTs and the Information Society has become an active area of social science enquiry. Such attention is evident in, for example, multi-disciplinary collaborations on virtual, spoken and visual interfaces, the formulation of more robust and hybrid qualitative and quantitative methodologies, and the development and analysis of policies ensuring that all South Africans can participate optimally in the Information Society. For those reasons, the ICT & Information Society focus area is designed to attract, expand and support humanities and social sciences researchers as part of the process of building South Africa's Information Society.

The main aims of ICT focus area are to:

- Ensure that a critical base of ICT specialists is trained and maintained to effectively contribute to the information needs of industry and society
- Grow a strong training and research base in academia to make South Africa an attractive international training ground for ICT
- Generate, design, and apply new information and communication technologies in an innovative way.
- Develop entrepreneurial skills to take knowledge and skills generated through research into business creation
- Enable South Africans, through research, to remain dynamic and accommodate the fast-moving changes and developments of this field
- Form appropriate partnerships to strengthen ICT capability through research capacity building, as well as redress in all sectors
- Raise the status and understanding of ICT and the use and management of information in all sectors
- Encourage the private sector, through partnerships and co-funding to invest in scholarships and chairs
- Make special provisions to attract post-doctoral students in ICT to uplift the capacity for research at HEIs
- Promote collaboration between science and engineering and social sciences in ICT

Conclusion

Gender equity is a very critical factor in enhancing economic growth. South Africa therefore cannot afford to ignore the untapped potential of its women populace

The proliferation of science and technology and the capacity of higher institutions of learning to harness it will remain a daunting challenge for those in positions of leadership. The focus on science and technology gives educational leaders a fresh perspective on the provisioning and serving of their institutions. It offers them a possibility to reformulate the vision and mission of their institutions to create adequate technological awareness amongst staff, students and the public. The rationale for such a campaign is to forge a better understanding of science and technology. It is also to create possibilities to infuse technology into the curriculum. Technology infusion presents academic with an opportunity to incorporate and apply modern technology to tackle socio-economic challenges. Furthermore, it has the potential to radicalize access to information. An increase in telecommunications resources and interactions available to all

citizens of the globe can positively transform their socio-economic status and role in global politics.

References

- Carl, A.E. (1995) *Teacher Empowerment through curriculum development: Theory into practice*. Kenwyn:Juta.
- Cutterbuck, D.(1995) *The power of empowerment: Release the Hidden Talents of your employees*. (London: Kogan Page.
- Dankelman, I (2003). *Gender, Environment and Sustainable Development: Theoretical Trends, Emerging Issues and Challenges (Review Paper)* United Nations International Research and Training Institute for the Advancement of Women (INSTRAW)
- Hafkin, N. (2002). *Gender issues in ICT policy in developing countries: an overview*. In: United Nations Division for the Advancement of Women (DAW) Expert Group meeting on “Information and Communication Technologies and their impacts on and use as an instrument for the advancement and empowerment of women” Seoul, Republic of Korea, 11-14 November
- Maeroff, G.I. (1988). *The empowerment of teachers: overcoming the crisis of confidence*. New York: Teachers College Press.
- National Research Foundation. (2003). *ICT [Online]*. Available <http://www.nrf.ac.za/focusareas/ict>. Accessed 25/08/03
- South African Telecommunications Act of 1999.
- SAITIS (2000). *South African ICT sector development framework*
- White Paper (1996) *Telecommunications Policy White Paper*, 15 March
- World Bank (2003). *Engendering Information & Communication Technologies: challenges and opportunities for gender-equitable development*. [Online]. Available http://www.worldbank.org/gender/digitaldivide/ict_brochure.pdf
- WSIS (2003). *Draft Declaration of Principles: Building the Information Society: a global challenge in the new Millennium*. [Online]. Available <http://www.itu.int/wsis/docs/pc3/declaration-principles.doc>
- WWW-ICT (2002). *...aiming at bridging the gap and improving equal opportunities in ICT professions*. [Online]. Available <http://www.ftu-namur.org/www-ict>

About the Authors



Lebusa A. Monyoee

Manager: Economic Growth & International Competitiveness Focus Area Programme
National Research Foundation
PO Box 2600, Pretoria 0001
South Africa.

email: lebusa@nrf.ac.za monyoee@hotmail.com

Tel: +27 12- 481 4230 Fax: +27 12 481 4005

Lebusa A. Monyoee is Manager for Economic Growth & International Competitiveness Focus Area Programme at the National Research Foundation. He was previously employed as Researcher Specialist in the Assessment Technology and Education Evaluation Directorate at the Human Sciences Research Council.

His research interests are curriculum design and development, policy development and management and assessment and evaluation



Steve Ledwaba

National Research Foundation
P.O. Box 2600, Pretoria 0001
South Africa.

email: steve@nrf.ac.za

Tel: (012) 481 4230/4239 Fax: (012) 481 4005.

Steve Ledwaba started his career as a Librarian and part-time lecturer in the Dept of Information Studies at the University of the North. He delivered papers and keynote addresses at various conferences and served as a consultant to the Department of Education/European Union (DoE/EU) Higher Education Libraries Programme offering training to historically disadvantaged institutions' library staff. He is currently attached to the National Research Foundation as a Programme Coordinator for the ICT and Challenges of Globalisation Focus areas, responsible among others, coordination and administration of the various internal and associated external activities of the two Focus areas.

His research interests include Interface design, Information retrieval, Digital libraries, Information processing and the uses of ICTs in online instruction. He holds Bachelor of Library & Information Science degree (B.Bibl), Bachelor of Information Science Honours degree (B.Inst Hons) both from University of the North and a Masters degree in Information Science (M.Inf) from Rand Afrikaans University.

Editor's Note: Learning objects make it unnecessary to have thousands of iterations of the same teaching point. Metadata makes it possible to select and integrate relevant learning experiences from a relatively small library of learning objects. Reusable learning objects permit lessons to be generated and customized for specific groups or even for individuals. Extensive research and development has led to a vocabulary of specialized terms to define learning objects. Rory McGreal provides a rationale to relate variations in terminology into a single practical definition of Learning Objects.

Learning Objects: A Practical Definition

Rory McGreal

Learning objects (LOs) enable and facilitate the use of educational content online. Internationally accepted specifications and standards make them interoperable and reusable by different applications and in diverse learning environments. The metadata that describes them facilitates searching and renders them accessible.

Learning Object Repositories (LORs) that are being created house the LOs providing seamless access to a vast store of learning resources such as animations, videos, simulations, educational games, and multimedia texts in the same way that Napster and iPod users have access to music files. LOs are what make this happen.

LOs are sometimes defined as being educational resources that can be employed in technology-supported learning. With appropriate metadata descriptions, they can be modular units that can be assembled together to form lessons and courses. A LO can be based on an electronic text, a simulation, a Web site, a .gif graphic image, a QuickTime movie, a Java applet or any other resource that can be used in learning.

Online, objects used for learning exist and interoperate at different levels of granularity. The simplest level is the content, information or knowledge object. This could be a simple text document, a photograph, a video clip, a three dimensional image, a Java applet or any other object that might be used for online learning. For example, a video clip from an international sporting event such as the World Cup would be an example of a simple media object. It becomes more useful for learners when a lesson is added to it. Many different lessons can be created from one component. This one video clip could form part of lessons in kinesiology, sports science, politics, history, media studies, and many other subjects could be created from this one video clip.

Longer learning experiences or groupings of lessons are considered to be modules. A module normally comprises less than 10 hours of learning. When lessons are longer than 10 hours or if they consist of more than one module, they are considered to be a course. A group of courses that lead toward a certificate or diploma is considered to be a programme. These are all LOs at different levels of granularity as shown in Figure 1.

Many institutions and organizations presently develop lessons, modules, and courses on common topics. Large numbers of similar lessons are being adapted for online delivery. This process can be very time consuming and expensive, making sharing essential. (Downes, 2000) argues that the world does not need tens of thousands of similar learning topics. Just as a cobbler did not go out and kill an animal, skin it, select the desired pieces of hide, and tan them for every single commission, but rather had various pieces in stock from which he could assemble to order, so a dozen well designed multimedia LOs could be used in thousands of courses. Online courses should therefore be designed as a collection of LOs rather than as whole, inseparable, long courses. In order to search for and find these LOs, descriptions of their characteristics are needed.

For this you need metadata that describes their many features. Metadata is essential for addressing LOs.

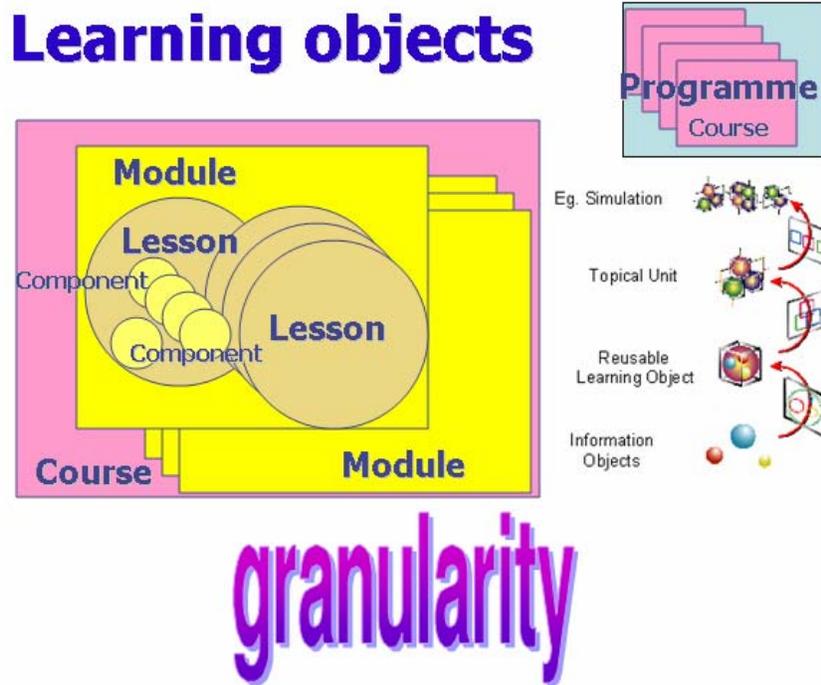


Figure 1: Learning object granularity

In order to search for and find LOs, which might be ideal for a particular course, descriptions of their many characteristics are needed. This is what metadata does. It is essential for addressing LOs. Metadata is often described as being “data about data”. This description is not particularly useful without examples, so here is one: Have you tried to find a house when there are no street signs or house numbers? These indicators may not be necessary in small villages, but in large cities, they become essential. Street names and house numbers are widely accepted descriptors that make it easier for people to find a particular building. The street names and numbers are a form of metadata. A library card is another commonly known type of metadata. The author, title, ISBN code are all fields in this standard metadata format

Metadata includes a listing of commonly defined fields for each LO. These fields conform to an accepted set of rules. These rules provide a means of creating, handling and storing data and electronically transferring information using common standards that enable international interoperability. Institutions normally insist on a subset of mandatory fields. These are often accompanied by a larger listing of optional fields. Additional fields can normally be added, so that the specifications are generally extensible.

The principal metadata standard for LOs is the IEEE LTSC LOM <<http://ltsc.ieee.org/index.html>>. Many organizations such as ADL, ARIADNE, and IMS have been involved either directly or indirectly in the development of the specifications on which this standard is based. A variety of application profiles for specific implementation of these standards such as SCORM, and SingCore have been developed. CanCore has been developed as a set of generic implementation guidelines <<http://www.cancore.ca>>

A listing of the different organizations involved along with an explanation of the difference between a standard, a specification, and an application profile is available online at <http://www.irrodl.org/content/v3.2/tech11.html>

To date, there is no commonly accepted definitive definition of LOs. It is proving remarkably difficult to come up with a common definition. Nor is there any agreement even on the terms used to describe LOs.

This terminology includes:

- *Asset* (Wiley 2000);
- *Component* (Ip *et. al.*, 1997; Koutlis *et. al.*, 1999; Merrill, 1983; Quinn and Hobbs, 2000; Roschelle *et. al.*, 1999);
- *Content object* (ADL, 2003; OASIS, 2003; Shabajee, 2002; Slosser, 2001);
- *Educational object* (Ilich, 1971; Friesen, 2001; EOE, 2003)
- *Information object* (Wiley, 1999; Epsilon Learning Systems 2003; Wieseler, 1999);
- *Knowledge object* (Merrill, 1999; Paquette and Rosca, 2002);
- *Learning object* (generic) term credited to W. Hodgins (Jacobsen, 2001);
- *Learning resource* (IMS Global Learning Consortium, 2000; Papatheodorou *et. al.*, 2002; Koper, 2003; Paquette and Rosca, 2002);
- *Media object* (ADL, 2001; Shabajee, 2002);
- *Raw Media Element* (CanCore, 2003); Duval & Hodgins, in press);
- *RIO (Reusable Information Object)* (CISCO, 1999; Wieseler, 1999);
- *RLO (Reusable Learning Object)* (Cisco Systems, 2001; Barritt and Lewis, 2002; MERLOT, 2002);
- *Unit of Learning* (Sloep, in press);
- *Unit of Study* (Koper, 2001);

Table 1
Learning object terminology

Anything	Anything Digital	Anything for Learning	Specific Learning Environment
Asset	Content Object	Educational Object	Reusable Learning Object (RLO)
Component	Information Object	Learning Object	Unit of Learning
Learning Resource	Knowledge Object		Unit of Study
	Media Object		
	Raw Media Element		
	Reusable Information Object (RIO)		

An examination of the various terms reveals that despite the differences of opinion, four general types of meaning can be discerned. These are shown in Table 1. They range from the general to the particular. There are 1) objects that could be anything; 2) objects that could be anything digital; and 3) digital objects that have been designed with an ostensible learning purpose or outcome; 4) other objects are specific to a single approach or proprietary standard like those of SCORM or Cisco's RLOs (Barritt *et. al.*, 1999; OASIS, 2003). Figure 2 shows how they fit together. The smaller circles are more specific with meanings fitting within the definitions of the larger more general circles.

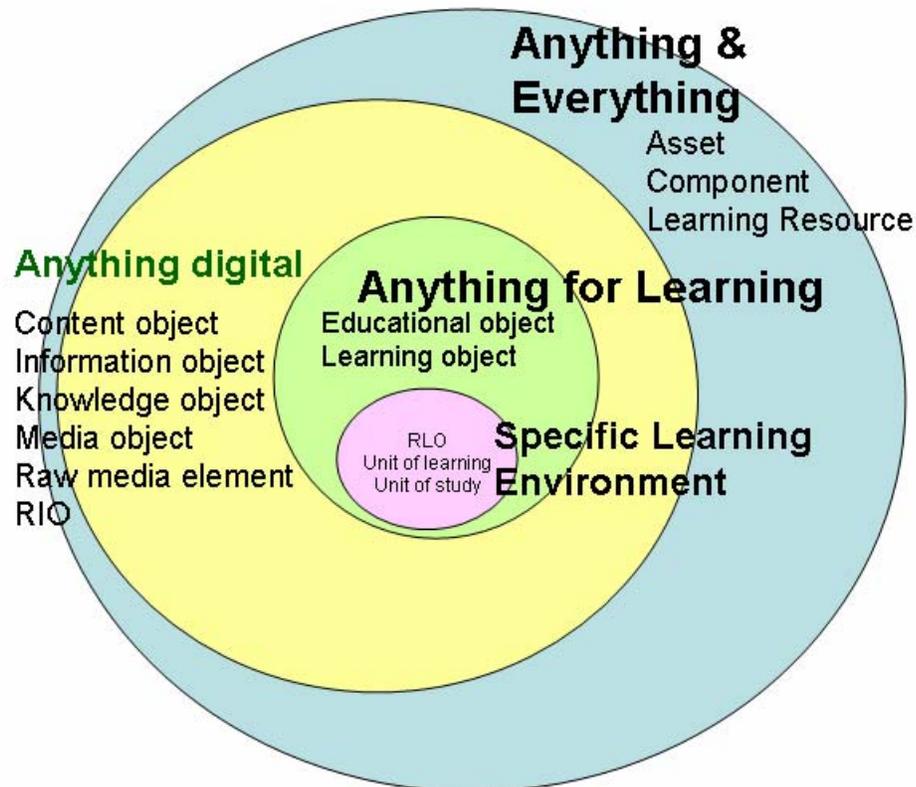


Figure 2: Terminology for learning objects

In line with the terminology, the assortment of what can be considered to be a LO ranges from anything and everything, through anything digital, to only objects that have an ostensible learning purpose, to those that support learning only in a particular or specific context. Among the definitions proposed are the following, moving from the general to the specific:

- Anything and everything (Downes, 2003; Friesen, 2001; Mortimer, 2002);
- Anything digital, whether it has an educational purpose or not (Wiley, 1999);
- Anything that has an educational purpose (Doorten, Giesbers, Janssen *et. al.* (in press); Quinn and Hobbs, 2000);
- Only digital objects that have a formal educational purpose (Dunning, 2002; Koper, 2003; Sosteric and Hesemeier, 2003; and Polsani, in press); and

- Only digital objects that are marked in a specific way for educational purposes (Alberta Learning, 2002; Cisco Systems, 2001; Rehak and Mason, 2003; Koper, 2001; Wieseler, 1999); Koper and van Es, in press; and Sloep, in press).

A diagram of these views of LOs is available in Figure 3. The north-south line represents the digital only/digital + anything dichotomy and the east-west axis represents the generic to learning specific continuum. The bottom left quadrant shows the extreme position of a LO as being anything, while the opposite quadrant includes both digital LOs with an ostensible learning focus and the more explicit digital LOs for specific implementations. The top left quadrant shows LOs as anything digital opposing the bottom right quadrant showing LOs with a learning focus including non-digital objects.

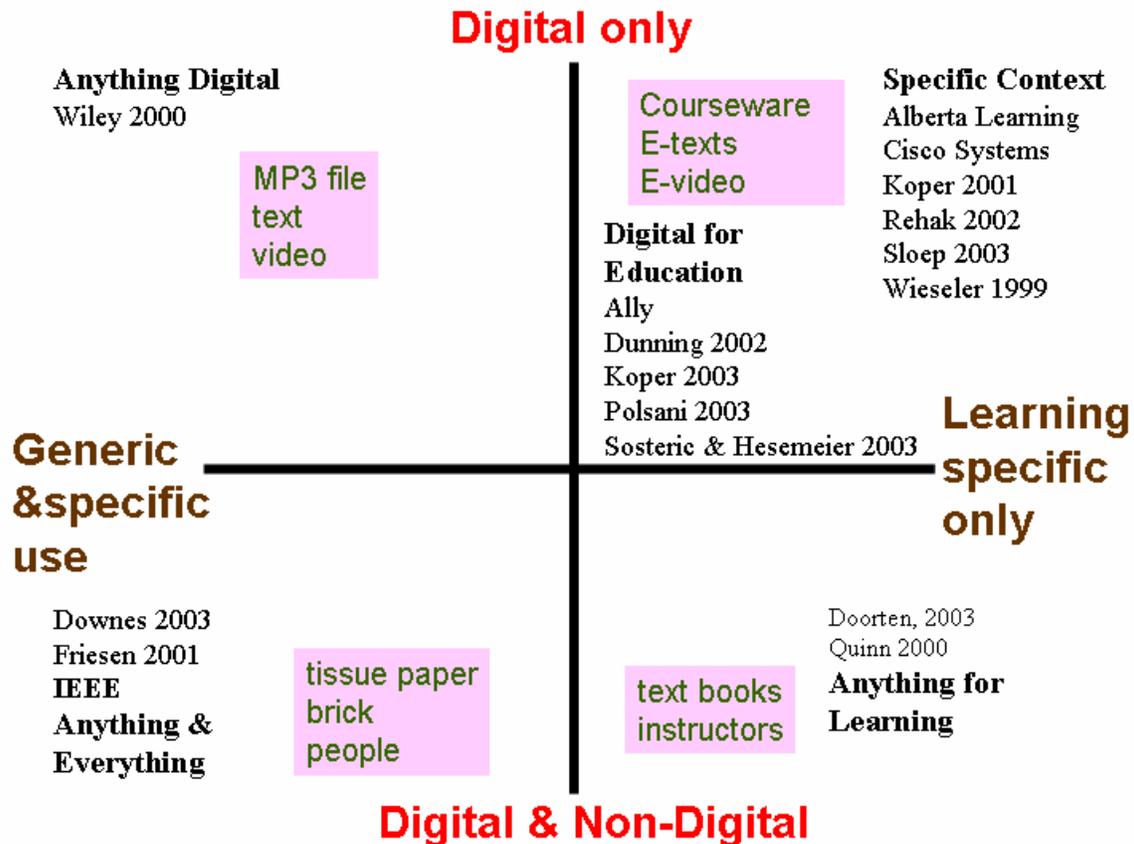


Figure 3: Learning object definitions quadrant

Anything and everything

In most discussions of LOs, participants can agree that LOs are digital, reusable, and are intended to support learning. The IEEE (2002) defines LOs as “any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning.” This definition is so broad as to encompass anything and everything. Merrill (2002) notes that it is “as small as a drop and as big as the ocean.”

Downes (2003), uses the example of tissue paper to argue that anything and everything can be used for learning and therefore must be considered to be a LO. He argues that there is no reason to restrict *a priori* what counts as a LO.

Whether something counts as a LO, depends on whether it can be used to teach or learn, and this can only be determined by its use, not by its nature. People will want to use a wide variety of objects, including even (in at least one case) a used tissue, in order to teach or learn. No good will come, therefore, of limiting a priori what objects will count as LOs and what objects will not (Downes, 2003). The Warwick University group (2004) support Downes' view that use determines whether or not an object becomes a learning object. However, they make a semantic distinction between "asset data", which consists of images, animation, VR models, etc. and "content object", which would also include the metadata that provides a context.

Anything digital

Proponents of this view argue that the terms "learning object" and "educational object" should not be used to encompass non-digital entities such as a book or even an instructor. The word "object" in this term comes directly from object-oriented programming (OOP). This is not a coincidence. The term "learning object" has grown out of the OOP movement (Quinn and Hobbs, 2000). The concept of LOs has been developed from OOP, much to the consternation of some (see Sosteric and Hesemeier, 2002; and Friesen, in press). Therefore, it does make sense to limit the use of the term to digital entities only.

Wiley (2000) settles on a definition of a LO as "any digital resource that can be reused to support learning." Even so, as Wiley comments, "the definition is broad enough to include the estimated 15 terabytes of information available on the publicly accessible Internet." Thus, even restricting the definition of LOs to digital resources still does not narrow down the meaning enough for it to be useful.

Anything that has an educational purpose

Doorten, Giesbers, Janssen *et. al.* (in press) define LOs as any reusable resource, digital or non-digital that can be used to support learning activities. They point out that as long as an object is addressable it can be used. They mention examples such as web pages, applications, textbooks, calculators, and microscopes. Quinn (2000) takes this broader view also and describes LOs as "chunks of educational content" that could be of any media type digital or non-digital.

In contrast to Wiley (2000), who focuses on the digital or "object" aspect of the definition of LOs, discounting the "learning", Doorten *et. al.*, (in press) and Quinn (2000) choose to focus on the "learning" aspect and disregard the "object" (Even though Quinn writes about the link of LOs to OOP). I believe that the reality lies in accepting the limitation that LOs must be digital learning resources. This does not necessarily preclude LOs from referring to external non-digital objects, although this might seriously affect their usability.

Digital objects that have a formal educational purpose

Sosteric and Hesemeier (2002) emphasize the intent of the object more than the structure. According to them, a LO is "a digital file (image, movie, etc.) intended to be used for pedagogical purposes, which includes, either internally or via association, suggestions on the appropriate context within which to utilize the object." They claim that a newspaper article would not be considered to be an LO simply because it could be used for learning. It must be linked to "pedagogical purposes". Polsani (in press), using Peirce's theory of signs, defines a LO as "a form of organized knowledge content . . . involving learning purpose and reusable value."

According to these authors, an information object becomes a LO when it is designed to be used by itself or in combination with other media objects to facilitate or promote learning. This learning should be demonstrable and testable through assessment and observation. To be an LO it must be packaged and made available for distribution as a lesson of some kind.

Duval & Hodgins (in press) refer to LOs as containing information objects, which in turn might contain raw media elements. They refer to aggregate assemblies that contain LOs and other aggregate assemblies. Dunning (2002) not only accepts that LOs are digital objects that facilitate learning but he seems to limit them to interactive practice exercises used to demonstrate content mastery by applying learnt content. He makes the further stipulation that the LO must also promote critical thinking through linkages to a larger course.

In the same vein, Koper (2003) refers to LOs as “units of learning” defined as digital objects with a specific educational purpose. However, he specifically excludes full courses from his definition. Ally (in press) defines a LO as “any digital resource that can be used and re-used to achieve a specific learning outcome or outcomes”. The three key words in these definitions are digital, re-usable, and learning outcome.

Digital objects marked for specific educational purposes

Some LO proponents go further than accepting a generic digital LO approach and add special conditions to their definitions. These conditions either address problems specific to the particular users or just outline a common approach to some of the more precise operations of LOs as online applications. Alberta Learning defines a LO for its own use:

One or more digital assets combined and sequenced to create or support a learning experience addressing a curricular outcome(s) for an identified audience(s). A learning object can be identified, tracked, referenced, used and reused for a variety of learning experiences" (Alberta Learning, 2002).

With this meaning, Alberta Learning creates a specific definition of a LO to suit their needs. Cisco Systems (2001) also chooses a specific designation for their Reusable Learning Objects, providing detailed instructions on their formation (see also (Wieseler, 1999).

The Digital Library Network for Engineering and Technology (no date) employs a specific LO definition for their use, tied into specific objectives, a designated audience, ownership, and intellectual property rights. The content of their LOs must remain unchanged in any conversion processes.

In explaining SCORM, Rehak (2002) points out that it has been designed to support LOs with a particular use in mind. “SCORM is essentially about a single-learner, self-paced and self-directed. It has a limited pedagogical model unsuited for some environments.” The initiators of SCORM: the US government and the Department of Defense have designed SCORM to meet their particular needs for workplace training on job applications and machines. Rehak does not consider SCORM to be suitable for either the K12 or higher education environments.

Koper (2001) and Sloep, (in press), referring to LOs as “units of study” or “units of learning” respectively, believe that an educational modeling language (EML) is necessary to get full power from the learning resources. Their EML now forms the basis of the IMS Learning Design specification and so could become acceptable more widely as being essential for the implementation of LOs in various learning contexts

Conclusion

There are good reasons for restricting which information objects should count as LOs and which will not. When a LO has a formal, expressed learning purpose, the object becomes useful to learners. Learning can be accidental or fortuitous, but it is generally more efficient when it is focused and directed. Learners cannot always be expected to discern the learning possibilities of any accessed component. That is why we have instructional design. That is why we change information or knowledge objects to LOs. Moreover, the usefulness of a LO can best be evaluated

once it has been placed in at least one specific learning context. Once it has been proven to work in one context, it can be better expected to be of some use in others.

In this way, learners can be more easily directed in their learning. This can in turn make it easier for them to achieve an unambiguous learning objective. It can be argued that this brings about an improvement in learning efficiency, which many would consider to be a good thing. In addition, the categorization and standardization of types of learning units allows the same lessons to be learnt by many different players? I suggest that such consistency in learning is of relevance in many situations, for example in skills training, like learning a sport or a foreign language. Distinguishing between information objects that have no ostensible learning objective and LOs is useful. It could be argued that all human knowledge is based on limiting and categorizing the reality that surrounds us.

It can also be seen as a matter of practicality for educators. Professional practice is best served by limiting the definition of LOs to what practitioners typically work with. So it's a matter of usefulness to educators as much as learners.

I propose that a good working definition of LOs should be developed from the two last typologies above: digital objects that have a stated educational purpose; and digital objects that are marked for specific educational purposes. LOs can be defined as **any reusable digital resource that is encapsulated in a lesson or assemblage of lessons grouped in units, modules, courses, and even programmes**. A lesson can be defined as **a piece of instruction, normally including a learning purpose or purposes**. This definition incorporates the top right quadrant of the chart in Figure 3. It is closer to the "Digital for Education" group being broad enough to incorporate the "Specific Context" group.

Summary

As course developers gain experience and as the number of online resources grows, the importance and necessity of LOs and the metadata standards that support them becomes more apparent. Efficient learning using the ever-expanding multimedia resources of the Internet will require the creation of LOs and the metadata to describe them. From anything and everything to specific digital learning resources, the future of learning is inextricably linked to the development of quality LOs.

References

- ADL (2001) [accessed 26 April 2003] Sharable content object reference model Version 1.2: The SCORM overview, [Online]
http://www.adlnet.org/ADLDOCS/Documents/SCORM_1.2_Overview.pdf
- ADL (2003) [accessed 28 April 2003] Sharable Content Object Reference Model (SCORM), [Online] http://www.adlnet.org/ADLDOCS/Documents/SCORM_1.2_ConformanceReq.pdf
- Alberta Learning (2002) [accessed 17 April 2003] Learn Alberta glossary, *Author* [Online]
<http://www.learnalberta.ca/>
- Ally, M. (in press). Designing effective learning objects. In R. McGreal (Ed.), *Online Education Using Learning Objects*. London: Routledge/Falmer.
- Barritt, C and Lewis, D (2002) [accessed 10 December 2002] Reusable learning object strategy, [Online]
http://www.cisco.com/warp/public/10/wwtraining/elearning/implement/rlo_strategy_v3-1.pdf
- CanCore (2003) [accessed 17 April 2003] [Online] <http://www.cancore.ca>
- Cisco Systems (2001) [accessed 18 May 2002] Reusable learning object strategy. Designing information and learning objects through concept, fact, procedure, process, and principle templates, [Online]
http://www.cisco.com/warp/public/10/wwtraining/elearning/implement/rlo_strategy.pdf
- Cisco Systems Reusable Information Object strategy, (1999) [accessed 19 May 2003] *Cisco Systems* [Online]
http://www.cisco.com/warp/public/779/ibs/solutions/learning/whitepapers/el_cisco_rio.pdf
- Digital Library Network for Engineering and Technology. (no date). *Brief introduction to learning objects in DLNET*, Retrieved May 28, 2004, from
http://www.dlnet.vt.edu/Resources/reports/ARI_LO_Def.pdf
- Doorten, M., Giesbers, B., Janssen, J., Daniels, J., & Koper, R. (in press). Transforming existing content into reusable learning objects. In R. McGreal (Ed.), *Online education using learning objects*. London: Routledge/Falmer.
- Downes, S (2000) [accessed 28 April 2003] The Need for and Nature of Learning Objects: Some Assumptions and a Premise, *News Trolls Inc.* [Online]
http://www.newstrolls.com/news/dev/downes/column000523_1.htm
- Downes, S (2003) [accessed 5 April 2003] Paper tissue argument, *Downes blog* [Online]
<http://www.downes.ca/cgi-bin/website/refer.cgi?item=1049084977&sender=>
- Duval, E., & Hodgins, H. W. (in press). Learning objects revisited. In R. McGreal (Ed.), *Online Education Using Learning Objects*. London: Routledge/Falmer.
- Epsilon Learning Systems (2003) [accessed 27 April 2003] Learning objects, *Author* [Online]
<http://www.epsilonlearning.com/objects.htm>
- Friesen, N (2001) [accessed 18 April 2003] What are educational objects?, *Interactive Learning Environments*, 9 (3), 219 - 30 [Online] <http://www.careo.org/documents/objects.html>
- Friesen, N. (in press). Some objections to learning objects. In R. McGreal (Ed.), *Online Education Using Learning Objects*. London: Routledge/Falmer.

- Hodgins, W and Conner, M (2000) [accessed 17 April 2003] Everything you wanted to know about learning objects but were afraid to ask, *LineZine*, (Fall), [Online] <http://www.linezine.com/2.1/features/wheyewtkls.htm>
- IMS Global Learning Consortium (2000) [accessed 17 April 2003] IMS learning resource meta-data best practices and implementation guide, [Online] http://www.imsglobal.org/metadata/imsmdv1p2p1/imsmd_bestv1p2p1.html
- Ip, A, *et. al.* (1997) Enabling re-useability of courseware components with Web-based virtual apparatus, in *What works and why, ASCILITE'97. Proceedings of the Australian Society for Computers in Learning in Tertiary Education Annual Conference*, eds R Kevill, R Oliver and R Phillips, pp. 286-91, Academic Computing Services: Curtin University of Technology, Perth.
- Jacobsen, P (2001) [accessed 4 December 2002] Reusable learning objects - What does the future hold?, *E-Learning Magazine*, [Online] <http://www.ltimagazine.com/ltimagazine/article/articleDetail.jsp?id=5043>
- Koper, R (2001) [accessed June 28 2002] Modeling units of study from a pedagogical perspective: The pedagogical meta-model behind EML, *Heerlen, Open University of the Netherlands* [Online] <http://eml.ou.nl/introduction/docs/ped-metamodel.pdf>
- Koper, R (2003) Combining reusable learning resources and services with pedagogical purposeful units of learning, in *Reusing Online Resources*, ed A Littlejohn, pp. 46 - 59, Kogan Page, London.
- Koper, R., & van Es, R. (in press). Modeling units of learning from a pedagogical perspective. In R. McGreal (Ed.), *Online education using learning objects*. London: Routledge/Falmer.
- Koutlis, M, Roschelle, J and Reppening, A (1999) Developing educational software components, *IEEE Computer*, **32** 50-58.
- Merrill, M D (1983) Component display theory, in *Instructional design theories and models: an overview of their current status*, ed C M Reigeluth, pp. Lawrence Erlbaum Associates, Hillsdale, NJ.
- Merrill, M D (1999) Instructional Transaction Theory (ITT): Instructional design based on knowledge objects, in *Instructional-design theories and models: a new paradigm of instructional theory*, ed C M Reigeluth, pp. 397- 424, Lawrence Erlbaum Associates, Mahwah.
- Merrill, M D (2002) [accessed 2 June 2003] Mental models, knowledge objects, and instructional design, *Brigham Young University* [Online] <http://zola.byu.edu/id2scorm/2002/abstracts/merrill.html>
- Mortimer, L (2002) [accessed 1 June 2003] (Learning) objects of desire: Promise and practicality, *Learning Circuits*, [Online] <http://www.learningcircuits.org/2002/apr2002/mortimer.html>
- OASIS (2003) [accessed 21 February 2003] Sharable Content Object Reference Model initiative (SCORM), [Online] <http://xml.coverpages.org/scorm.html>
- Papatheodorou, C, Vassiliou, A and Simon, B (2002) [accessed 1 December 2003] Discovery of ontologies for learning resources using word-based clustering, in *ED-MEDIA 2002 Conference*, August, Denver [Online] <http://www.wu-wien.ac.at/usr/wi/bsimon/publikationen/EDMEDIA2002.pdf>

- Paquette, G and Rosca, I (2002) [accessed 18 May 2003] Organic aggregation of knowledge objects in educational systems, *Canadian Journal of Learning Technologies* [Electronic version], **28** (3) [Online] http://www.cjlt.ca/content/vol28.3/paquette_rosca.html
- Polsani, P. R. (in press). Signs and objects: Modeling learning objects on Peirce's theory of signs. In R. McGreal (Ed.), *Online Education Using Learning Objects*. London: Routledge/Falmer.
- Quinn, C and Hobbs, S (2000) [accessed 13 August 2002] Learning objects and instructional components, *Educational Technology and Society*, **3** (2), [Online] http://ifets.ieee.org/periodical/vol_2_2000/discuss_summary_0200.html
- Rehak (2002) [accessed 25 March 2003] SCORM is not for everyone, *the Centre for Educational Technology Interoperability Standards* [Online] <http://www.cetis.ac.uk/content/20021002000737>
- Rehak, D and Mason, R (2003) Keeping the learning in learning objects, in *Reusing online resources: A sustainable approach to e-learning*, ed A Littlejohn, pp. Kogan, London.
- Roschelle, J., DiGiano, C., Koutlis, M., Repenning, A., Jackiw, N., & Suthers, D. (1999) Developing educational software components. *IEEE Computer*, **32**(9), 50-58.
- Shabajee, P (2002) [accessed 26 April 2003] Primary multimedia objects and 'educational metadata' - A fundamental dilemma for developers of multimedia archives, *D-Lib Magazine*, **8** (6), [Online] <http://www.dlib.org/dlib/june02/shabajee/06shabajee.html>
- Sloep, P. B. (in press). Why learning design? In R. McGreal (Ed.), *Online Education Using Learning Objects*. London: Routledge/Falmer.
- Slosser, S (2001) [accessed 1 December 2003] ADL and the sharable content object reference model, *Joint ADL Co-laboratory* [Online] <http://www.nectec.or.th/courseware/pdf-documents/adl-scorm.pdf>
- Sosteric, M., & Hesemeier, S. (2002, November 2002). When is a learning object not an object: A first step towards a theory of learning objects. *International Review of Research in Open and Distance Learning*, **3**(2) Retrieved 1 December, 2002, from <http://www.irrodl.org/content/v3.2/index.html>
- Warrick University Centre for Academic Practice. (2004). *Glossary*, Retrieved March 28, 2004, from <http://www.warwick.ac.uk/ETS/arches/glossary.htm>
- Wieseler, W (1999) [accessed 9 May 2000] RIO: A standards-based approach for reusable information objects, *Cisco Systems* [Online] <http://www.cisco.com/warp/public/779/ibs/solutions/publishing/whitepapers/>
- Wiley, D A (1999) [accessed 17 April 2003] The Post-LEGO Learning Object, *Author* [Online] <http://wiley.ed.usu.edu/docs/post-lego/>
- Wiley, D A (2000) [accessed 17 April 2003] Connecting learning objects to instructional design theory: A definition, a metaphor, and a taxonomy, in *The instructional use of learning objects: Online version*, [Online] <http://reusability.org/read/chapters/wiley.doc>

ACKNOWLEDGEMENTS

This article is based on work published in:

McGreal, R., Ed. (2004). *Online Education Using Learning Objects*. Open and Distance Learning Series. London, Routledge/Falmer.

ACRONYMS AND ABBREVIATIONS

ADL	Advanced Distributed Learning
ARIADNE	Alliance of Remote Instructional Authoring and Distribution Networks for Europe
AU	Athabasca University
CANCORE	Canadian Core Metadata implementation profile
CANARIE	Canadian Network for Advanced Research for Industry and Education
CAREO	Campus Alberta Repository of Educational Objects
EML	Educational Modelling Language
IEEE	Institute of Electrical and Electronics Engineers
IEEE LTSC	IEEE Learning Technologies Standards Committee
IMS	formerly Instructional Management System
IMS LD	IMS Learning Design
K12	Kindergarten to Grade 12 (US primary and secondary schools)
LD	Learning Design (IMS specification)
LMS	Learning Management System
LO	Learning Object
LOM	Learning Object Metadata
LOR	Learning Object Repository
OOP	Object-Oriented Programming
RIO	Reusable Information Object
RLO	Reusable Learning Object
SCORM	Shareable Courseware Object Reference Model

About the Author

Rory McGreal is Associate Vice President, Research at Athabasca University, Canada's Open University and the 2002 winner of the Wedemeyer Award for Distance Education practitioner. Previously he was director of TeleEducation New Brunswick, a province-wide distributed distance learning network. His Ph.D. degree (1999) in Computer Technology in Education at Nova Southeastern University's School for Computer and Information Science was taken at a distance using the Internet. rorry@athabascau.ca

Editor's Note: Technology has transformed distance learning into a growth industry. It began after World War II using broadcast television, supplemented in the late 1950s by Airborne Television in the Midwestern United States, and cable television in Hagerstown Maryland and Anaheim California. Instructional Television Fixed Service provided a low-cost broadcast option for schools. Satellite teleconferences and interactive television using ISDN telephone lines came later.

Popularization of personal computers in the 1980s and the World Wide Web in the 1990s revolutionized the logistics and economics of distance learning for groups and individuals. Online learning is now widely used for training and education. Despite explosive growth of distance learning, a disproportionately small number of institutions offer programs for distance learning providers, teachers, and administrators. This is a study of graduate programs that provide academic preparation and leadership in distance education.

The Study of Distance Education by Distance Education

Nathan K. Lindsay and Scott L. Howell

Key Words:

distance education graduate programs, degrees, certificates, specializations, discipline, online learning, distance education trends, distance education textbooks, distance education dissertations, growth industry, educational administrator, instructional coordinator, delivery models

Introduction

Distance education has become what analysts call a growth industry, and they predict it remaining so for many years to come. The term *distance education* was formally introduced into the U.S. government's Educational Resources Information Center (ERIC) thesaurus on October 24, 1983 (Wright & Howell, 2004). One government study reported that distance learning had a presence in only ten states in 1987 but by 1989 it was in all 50 states (Perelman, p. 1992). The most current studies on distance education enrollment trends available at the time of this writing show that this enrollment growth "was a rocket-like 27.64%" for those 71 established distance education programs surveyed for the academic period September 2003 to January 2004 ("The Survey," 2004). An economic study shows that the "U.S. education and training industry will grow from \$2.1 billion revenue in 2002 to \$33.6 billion in 2005" ("Six Higher," 2004).

As academe continues to observe this growth phenomenon, many from within the educational institution and outside have asked what role universities, especially graduate schools, have in preparing a future workforce to accommodate such a shortage in distance education expertise. The newest release of the government's *Occupational Outlook, 2004-5*, projects both the *education administrator* and *instructional coordinator* job outlook as growing "faster than average" for all occupations through 2012, which equates to a predefined categorical growth rate range of 21 to 35 percent (U.S. Department of Labor: Bureau of Labor Statistics, n.d.). While distance education educators are part of this general category of *education administrator* and *instructional coordinator*, many would agree that the distance education administrator and specialist subcategory are in even higher demand than the other administrators and coordinators.

The questions this study sought to address include (a) who the distance education graduate programs are that have emerged to provide academic preparation and leadership in distance education, (b) what some of the characteristics of these programs are, and (c) whether or not the growth in the academic discipline of distance education is keeping pace with growth in the distance education industry.

Method

The authors' initial review of the most recent graduate program reference books (i.e., Peterson's *Graduate Programs in Business, Education, Health, Information Studies, Law, and Social Work*) and online databases (e.g., www.Petersons.com, www.GetEducated.com, and <http://www.edx.com/courselistings/degreedetails.asp?SubCatID=447>) revealed only a few programs that actually focused on the study of distance education as an academic discipline of its own. What the authors found instead was that most databases and search engines confused the plethora of academic disciplines *delivered* by distance education with what appeared to be just a few graduate programs that actually *specialized* in the study of distance education.

The other means by which this graduate program list was both validated and appended was through an analysis of the 109 dissertations and theses completed in 2003 by North American university students on the subject of distance education and cited in the ProQuest® Digital Dissertation Index. While the list of distance education graduate programs generated herein is not exhaustive, it represents a majority of the graduate distance education programs extant in North America.

The researchers generated a pool of 18 informal questions from which graduate programs could be queried. Before any program representative was contacted, each program Web site was reviewed for what information was available so that the follow up e-mail and/or phone contact would be minimized. A sample of some of the questions asked of each program include the following:

- What types of certificates/degrees do you offer with distance education specialization?
- What is the focus or primary goal(s) of your distance education courses/program?
- When was your distance education program (or courses) first established?
- What is your primary delivery model/medium (e.g., online, face-to-face [f2f], hybrid [online and f2f], satellite, two-way audio/video, correspondence, etc.)?
- What is your foundational DE primer(s) or textbook(s)?
- Do you foresee any significant changes in your program in the next few years?
If so, what are they?

Description of Results

While this informal study of distance education degree and certificate programs is not exhaustive, the authors believe the effort to identify and provide some meta-analysis of the extant programs does contribute to a better understanding of the state of distance education graduate programs. At least ten institutions were identified that offer certificates or degrees in distance education, while many more graduate programs were discovered that integrate individual courses and emphases or specializations in distance education as part of a broader curricular scope (e.g., educational technology or instructional science).

The significance of this integration cannot be overlooked since graduate students from 74 different universities wrote the 109 distance education dissertations completed in 2003. Clearly, many institutions have either integrated distance education or allowed their graduate students to study distance education within a larger context to have so many institutions researching distance education and so few specializing. Assistant Vice Provost for the College of Extended Learning at New Mexico State University, Mark Workman, may have said it best:

“From what I have seen, few institutions are looking at DE as a discipline. They typically embed it into some other discipline. We saw the same type of thing happen in the early '70s with computer science. No one offered computer science as a stand-alone discipline. It was always part of engineering, chemistry, business, or some other discipline”
(*Electronic Communication to author, 7/9/2004*).

Integrated Distance Education Courses and Emphases Courses

Many graduate programs offer only one or two courses within the field and study of distance education as part of a large curricular sequence and program. For example, students in the MED Educational Technology program sponsored by the University of South Carolina–Aiken (USCA) and USC–Columbia can take Design and Evaluation of Information Access and Delivery, a course with significant focus on distance education. Similarly, the University of North Texas has a Theory and Practice of Distance Education course. Other examples of universities with instructional technology programs containing a small distance education focus as part of a large program of study in education and instructional technology include Brigham Young University and San Diego State University.

Emphases, Concentrations, Minors, and Specializations

In other programs, however, the emphasis on distance education extends beyond a class or two. For example, graduate students at the University of Florida can pursue a minor or a certificate in distance teaching and learning, while those attending Florida State University in the Instructional Systems Master’s Degree Program can pursue a major in open and distance learning, even though only one course and one practicum are specifically focused on distance learning. Syracuse University’s Instructional Design, Development and Evaluation Program offers courses and a concentration within the master’s degree devoted to distance learning. At Capella University, master’s students in education can specialize in teaching online and can also earn a certificate in online instruction. Similarly, the University of Phoenix Online offers a master’s degree in education, with a specialization in adult education and distance learning. About 8 years ago, UCLA Extension began offering a sequence of quarter-long courses collectively called the Online Teaching Program that has been used by other universities as well. Jones International University offers a master’s degree with specializations in e-learning that focus on corporate training and knowledge management, technology and design, and general studies. Penn State offers a master’s degree in adult education and a certificate in distance education. Many similarities among the graduate programs listed here are apparent, but the program titles and curricula reveal significant differences as well.

Distance Education Certificates

Other institutions, in addition to Florida, Capella, and Penn State, offer certificates in distance education. The Distance Education Certificate Program, sponsored by the State University of West Georgia and entering its thirteenth session, is for professionals, teachers, and trainers preparing for leadership roles in distance learning. The six-month program is offered completely online and incorporates conceptual knowledge into practical learning experience. Areas explored include foundations of distance education, course planning, design and implementation, evaluation, faculty and student support, administrative and management issues, and technologies. The University of Wisconsin–Madison, Indiana University–Bloomington, and the University of Maryland–Baltimore County also offer certificates in distance education. In a related discipline, andragogy, Saint Joseph’s in Maine offers a certificate in adult education and training as well as an associate degree in adult education and training.

Distance Education Master's Degrees

Graduate programs with some curriculum and degrees/certificates in distance education are numerous, but the only master's degree focused entirely on distance education in the United States was established in 2000 by the University of Maryland University College (UMUC). As described on their Web site, the program is "designed to produce individuals who are capable of managing the distance education enterprise within educational, business, government, and non-profit organizations" (2004). To accomplish this, the program provides "a broad view of the field of distance education and training, including such areas as history, theory, technology, organizational structures, marketing, management, and business skills" (2004). All courses are conducted entirely online. The UMUC master's program also has an institutional partner from Germany, Oldenburg University, and together they have been able to provide academic leadership and research within the field.

Distance Education Doctoral Programs

Beyond the master's degree at least three opportunities exist in distance education for doctoral students. Nova Southeastern University offers an Ed.D. in instructional technology and distance education, and this program delivers content in a blended or hybrid modality, combining face-to-face sessions with distance education. Duquesne's School of Education offers an Ed.D. in instructional technology with a specialization/strand in teaching with distance learning. In 2000, Regent University launched a limited residency doctor of education program with a number of cognate areas, one of which is distance education.

Some International Degrees and Certificates in Distance Education

Outside the United States, numerous distance education degrees and certificates are offered. There are master's degrees in distance education in Canada (Athabasca University and Royal Roads University), the U.K. (the British Open University and the University of London), Australia (the University of Southern Queensland), and India (Indira Ghandi Open University)—although the latter's program is primarily aimed at training distance teachers. As another option, the Staff Training and Research Institute of Distance Education in Ignou, India, offers a postgraduate diploma in distance education (P.G.D.D.E.) and a master's degree in distance education (M.A.D.E.).

Discussion

This study suggests that distance education as an academic specialization is still narrow; limited; dependent on other, more established disciplines, usually in the field of education; and new. However, it is encouraging that more distance education specialized programs have begun to emerge within academe. Most of the programs identified started in the last decade, the oldest programs being offered through the University of Wisconsin (1993), Athabasca University (1994), and Nova Southeastern University (1996). The most recent programs are at the University of Maryland (2000) and Regent University (2000). While many of the instructional/educational technology programs which sponsor some distance education interest are much older, the programs *studying* distance education are much newer.

Other Distance Education Program Features

Distance education graduate programs are administered by a small number of full-time faculty complemented by adjunct faculty, part-time instructors, or other teachers who help the full-time faculty carry the teaching load. Most students are adult learners who are working full or part time. The enrollment numbers are typical for graduate programs, with 15 to 25 students admitted each year. Most distance education courses and programs are hosted by colleges of education, but there are a number of exceptions, including Athabasca University's program seated in the Centre for

Distance Education and Maryland's program in the Graduate School. Most distance education courses and programs are sponsored by traditional, nonprofit academic institutions, but corporate exceptions such as the University of Phoenix and Capella University are noteworthy.

Most distance education graduate programs emulate what they teach by using distance education delivery systems and teach distance education at a distance using distance education technologies. Most instruction occurs online using asynchronous communication; some programs have a residential and face-to-face dimension.

In looking over the course requirements and curricular sequences, it becomes apparent that greater emphasis is placed on practical applications and applied research as contrasted to theoretical principles. This is expected since the majority of distance education students are in certificate and master's programs, rather than the more research-oriented doctorate programs. In terms of objectives, programs emphasize the goal to produce skilled professionals who can lead distance education programs and initiatives during the coming decades.

Little consistency existed concerning the seminal books on distance education theory, systems, and delivery being used in each of the programs. However, some of the texts that emerged as more common and foundational than others include Moore and Kearsley's *Distance Education: A Systems View* (soon to be released in its second edition); Simonson, Smaldine, Albright, and Zracek's *Teaching and Learning at a Distance: Foundations of Distance Education (second Edition)*, and *Distance Learning: Principles for Effective Design, Delivery, and Evaluation*, by Mehrotra, Hollister, and McGahey.

Future Trends

One of the final questions of our survey given to program representatives was, "Do you foresee any significant changes in your program in the next few years? If so, what are they?" Many responded that it was uncertain how their programs would change (or that they would not change), but others had clearer expectations. Athabasca University is planning to develop a doctorate in distance education, the University of Maryland is expecting growth in student numbers, and Nova Southeastern University is striving to place increased emphasis on applied dissertation research. Regent University's program anticipates possible course additions or the creation of an instructional technology cognate for students interested in educational technology, but not distance education in particular.

Conclusion

With millions of students across the world involved in distance education, it is essential that the leaders and administrators of such programs receive adequate training for their responsibilities. Graduate programs in which students can explicitly study distance education will help meet this critical need and advance distance education theory and research. Graduates of these distance education master's and doctoral programs are in demand and are being successfully placed in the workforce better prepared for the challenging complexities inherent in distance education.

Even though the growth of distance education graduate programs has *not* kept pace with the explosive growth of the distance education industry, there is evidence that more and more representation and integration of the distance education discipline is finding its way into formal academe. Only a few mainstream distance education graduate programs exist, having come into existence during the past decade. As noted earlier, 74 unique institutions of higher learning in the U.S. and Canada sponsored research on a distance education topic in the year 2003 alone.

The authors believe that distance education scholars can and should do more to promote the study and discipline of distance education within their institutions' graduate programs. Many

educational programs across the continent are already positioned with existing graduate programs to formally introduce a distance education course or two within their curricular scope. The authors invite more institutions and colleges to consider adopting distance education emphases, concentrations, minors, and specializations in content-related graduate programs. Academe needs to step up and help educate a distance education workforce, while at the same time make an increasing contribution to the theory and discipline of distance education so as to better inform distance education practice.

References

- Graduate programs in business, education, health, information studies, law, and social work. (38th Ed.). Lawrenceville, New Jersey: Thomson-Peterson.
- Mehrotra, C., Hollister, C. D., & McGahey, L. (2001). *Distance learning: Principles for effective design, delivery, and evaluation*. Thousand Oaks, California: Sage Publications.
- Moore, M G., & Kearsley, G. (1996). *Distance education: A systems view*. Belmont, California: Wadsworth.
- Perelman, L. J. (1992). *School's out: A radical new formula for the revitalization of America's educational system*. New York: Aron Books.
- Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. (2003). *Teaching and learning at a distance: Foundations of distance education* (2nd ed.). Upper Saddle River, New Jersey: Pearson Education, Inc.
- Six higher education mega trends—what they mean for the distance learners. Retrieved July 28, 2004, from http://distancelearn.about.com/cs/future/a/megatrends_2.htm
- The survey of distance & cyberlearning programs in higher education, 2004 edition. (2004). Primary Research Group, Inc.
- University of Maryland University College. (2004). Retrieved July 28, 2004, from <http://www.umuc.edu/grad/mde/>
- U.S. Department of Labor: Bureau of Labor Statistics. (n.d.). Education administrators. Retrieved July 28, 2004, from <http://bls.gov/oco/ocos007.htm>
- Wright, T. & Howell, S. (2004). Ten efficient research strategies for distance learning administrators. *Online Journal of Distance Learning Administration*, 7(2). Retrieved July 28, 2004, from <http://www.westga.edu/~distance/jmain11.html>

About the Authors



Nathan Lindsay

Nathan Lindsay received his Master's degree in Instructional Systems Technology from Indiana University where he taught three courses and worked at the Center of Instructional Consulting.

He is currently a doctoral student in Higher Education at University of Michigan. His interests are improvement of teaching and learning, student development, and technology in higher education.

Nathan K. Lindsay, Doctoral Student ,
Center for the Study of Higher and Postsecondary Education
University of Michigan School of Education, Room 2117
610 East University Avenue, Ann Arbor, MI 48109-1259 (734)
763-0504

nlindsay@umich.edu



Scott L. Howell

Dr. Scott L. Howell is the assistant to the dean for the Division of Continuing Education at Brigham Young University. He has also been the director of the Center for Instructional Design, director of the Bachelor of General Studies, and assistant director of the Department of Independent Study.

Dr. Howell received his Ph.D. in instructional science, his M.S. in community education, and his B.S. in business management.

Scott L. Howell, PhD, Assistant to the Dean,
Division of Continuing Education and Adjunct Faculty,
Instructional Psychology and Technology
Brigham Young University, Provo, UT 84602 (801) 422-6280

Scott_Howell@byu.edu

Editor's Note: This large online staff-development program for Special Education involved federal, state, and local education agencies. It used state teams, retreats, a project web site, and studies to collect data. This study evaluates design, production, and implementation of an online staff development module.

Beta Testing Online Staff Development for Implementation at Scale

Edward L. Meyen, Ronald J. Aust and Chien Yang

Key Words:

Evaluation, Field Testing, Beta Testing, Staff development, Professional development, In-service, Online instruction, e-learning, Instructional design, Implementation, Scalability. Dissemination

Abstract

This beta test was conducted as part of the activities carried out by a multi-state planning project to develop guidelines for implementation of large-scale online staff development programs. The beta test was designed to evaluate the features of an online staff development model and to provide participants in the planning project a common experience in understanding online staff development. Fifty-one educators, in several professional roles, from nine states participated in a series of focus groups and surveys to develop recommendations on implementation.

Background

The planning project that provided the context for this study emerged from the work of the Online Academy (Meyen, 2002) and the University of Kansas e-Learning Design Lab (eDL) (Meyen, 2003). As part of the planning effort, a needs assessment study (Meyen, Ramp, Harrod, & Bui, 2002) identified 113 topics perceived as being important for staff development programs. A supplemental award from the Office of Special Education Programs (OSEP) in the U.S. Department of Education supported a prioritization process that established topics for developing five online modules to address critical staff development needs of national significance and a planning process aimed at the development of recommendations on the delivery of online staff development by states. The following online modules were developed, beta tested, and released to state dissemination teams:

- Curricular Design and Instructional Accommodations for Secondary Students with Mild Disabilities
- Relating Instructional Assessments to Standards
- Models for Collaboration
- Transition-Focused Secondary Education for All Students
- Developing Standards-Based IEPs

The beta testing model reported in this paper was designed to provide a basis for refining the modules and serving as an experience for planning participants as a way to achieve a common understanding of this type of online staff development. In this context, the beta test was central to the process that led to the ultimate decisions on recommendations for implementation of large-scale online staff development. The final report for the supplemental project, along with the five modules, can be accessed on the eDL website at www.elearndesign.org.

The Multi-State Planning Process staff development

External Leadership: The board was comprised of nine individuals representing state education agencies (SEAs), regional resource centers (RRCs), local education agencies (LEAs), institutions of higher education (IHEs), and the Office of Special Education Programs in the U.S. Department of Education (OSEP). The divisions of Research to Practice and Monitoring and State Improvement Planning in OSEP were both represented.

State teams: Nine state teams represented the primary source of data input for the planning process and the participants in the beta test. Each team was comprised of representatives from the respective SEA and an institution of higher education, along with a principal, a staff development specialist, and at least one classroom teacher. In one case, a regional resource center representative served on a team (this person was also on the national advisory board). For all of the teams, the SEA representative served as the team leader, coordinating all team activities.

Retreat Planning Sessions: Two two-day retreats involving the state teams and members of the board represented the setting for planning. Planning sessions were also conducted by the board prior to the retreats. During the board planning sessions, the initial project goals were framed, the planning process conceptualized, and the retreat model agreed upon. OSEP awarded funds to each state to cover the costs for their team members to participate in the retreat sessions.

Project web site: The project web site served as the primary communications vehicle. All data were conducted electronically and modules that were beta tested by the participants were accessed through the web site. Furthermore, participants communicated with their team members, the eDL staff, and their team leader via electronic communications.

Studies Supporting the Planning Process: Three studies were conducted as means of collecting data that would inform the planning process. These included (a) identification of barriers to online staff development, (b) determining conditions and or parameters of successful online staff development, and (c) beta testing of online staff development modules by planning participants. This paper focuses on the beta test study (Meyen & Yang, 2003a,b).

Literature Review

While there is an emerging literature base on evaluating online instruction the focus tends to be more on the perceptions of students enrolled in online instruction rather than an emphasis on the design, navigation and content structure. Instructional Technology Service (ITS) at Texas A & M University (Texas A&M University, nd) provides a model to design online courses, which includes five phases: analysis, design, develop, implement, and evaluate (ADDIE). According to ITS, evaluation is the final phase of designing online courses and it serves as the quality management component for online programs. Evaluation aims to evaluate the effectiveness and quality of instructional process and materials by the completion of alpha or beta testing. It also serves the purpose of ensuring that learners are comfortable with the technology used in online learning (Boyers, 1997). Bodily and Mitchell (1998) published a source book on the evaluation of Challenge Grants funded by the U.S. Department of Education. More recently resources have begun to appear in the literature on the formative evaluation of web-based courses (Maslowski, Visscher, Collis, & Bloeman, 2000; Youngman, Gotcher, Vafa, Dinsmore, & Goucher, 2000). The beta test design for this study drew heavily from the work of Beyer (1995) on distance education. While beta testing or evaluation of e-learning programs is extensively applied in large corporations (e.g. Microsoft), little is addressed in terms of the guidelines and considerations in interpreting the beta testing results.

The beta test design for this study drew heavily from the work of the Online Academy (Meyen, Aust, Bui, Ramp, & Smith, 2002). The Academy employed five foci in beta testing 22 online modules nationally. The foci included (1) instructional design of the online modules, (2) the production system, (3) content development, (4) usability and navigation, and (5) implementation.

Methodology

The procedures for the beta testing emerged out of discussions at the first planning retreat as well as the experiences of the eDL staff in previous beta testing. The instructional design for the staff development modules was the same as that developed by the Online Academy (Meyen, 2002) that had been subjected to extensive evaluation (Meyen et. al., 2002). Because the content had been developed by national content experts, it was decided that while this beta test would address content, it would focus primarily on participants' perceptions of the implications for implementing online staff development. As a result, demographic data were collected on each participant completing a module. This allowed the results to be analyzed by total group of respondents or by role of individual participants (i.e., SEA representatives, IHE faculty, teachers, principals, or staff development specialists).

Procedures employed in the beta test included the following:

- Content experts were paired with a teacher.
- Modules were demonstrated to participants at an orientation session.
- Participants were required to select a module of their personal choice to beta test.
- A web site was developed containing all the information necessary to participate in the beta testing and to report evaluative responses.
- A response monitoring system maintaining subject anonymity was used.
- Deadlines were set for completion of the beta testing and reporting of the results.
- Results were tabulated electronically as they were received.
- A summary of quantitative responses (Effectiveness Record) and narrative responses (Beta Test Audit) was developed and posted.
- Content issues were reviewed internally to determine if they warranted revision.
- An audit summary based on analysis of responses was developed.
- The audit summary was reported back to the participant group during the second retreat.

Results

Context of Beta Test

The instructional design and the technology employed in developing the staff development modules had already been extensively beta tested and were being implemented with other content in preservice teacher education programs nationally. Additionally, the content had been developed by content experts selected nationally and had been subjected to review.

The beta test was targeted at seeking input from the project participants, particularly to assess the effectiveness of the modules and the implications for online staff development; participants were also asked to identify any errors in content, problems related to navigation, and organizational

needs. The engagement of the project participants in the beta test process had the advantage of ensuring that each participant would personally experience online staff development as part of the project. Since few had prior personal experience with developing or participating in online staff development, this direct involvement was viewed as critical to their preparation of recommendations for the full-scale online staff development implementation. Thus, it was important to conduct the beta test early in the project to vest critical stakeholders in the evaluation and refinement for the full-scale implementation.

Demographics

Fifty-one individuals from nine states participated in the beta test. Participants included 10 state education agency staff, 6 professors, 6 principals, 14 teachers, 8 professional development specialists, and 7 individuals representing Regional Resource Centers and individuals in varied administrative roles. Forty-four were female and seven were male.

Table 1
Participants' Experience on Computers and Internet Usage

Amount of Experience	Computers	Internet Usage
Less than 1 year	--	1
1-3 years	2	8
3-5 years	6	15
5+ years	42	27
	n=50	n=51

Relevant experiences of participants in using computers, the Internet, and in completing an online course are reported in Table 1. One participant reported less than one year of experience in using the Internet, eight 1-3 years, fifteen 3-5 years and twenty-seven reported more than five years. In terms of experience in using computers, two reported 1-3 years of experience, six 3-5 years and forty-two reported more than 5 years.

Table 2 contains data on Internet usage per week. As illustrated, 25 participants reported spending less than 5 hours a week, twenty-one 5-10 hours and five reported spending more than 10 hours a week on the Internet.

Table 2
Internet Usage Experience per week

Hours per week	# of Participants
Less than 5 hours	25
5-10 hours	21
More than 10 hours	5
	n=51

When asked about their experience in taking online courses, 38 reported that they had never taken an online course. Ten reported having taken 1-2 courses, with three reporting completing 3-10.

Table 3 describes participants' use of technology in their professional role. Twenty-one reported that they fully use technology in their daily work; 29 reported that they make moderate use of technology in their daily work. One reported rarely using technology in daily work.

Table 3
Technology Usage by Participants

Ranking	# of Participants
Rare usage	1
Moderate usage	29
Full usage	21

$n=51$

In contrast to a typical beta test that focuses on assessing the effectiveness of design, validity of content, stability and usability of the technologies, the framework for this beta test was influenced largely by the project planning needs. The framework included two elements. The first was to establish an Effectiveness Record on the part of the participants. Specifically, this element addressed participants' perceptions of preferred characteristics of online staff development, their experiences in testing the online staff development modules, and the contributions of specific features in the instructional design to their learning. The second element took the form of a Beta Test Audit, collecting qualitative data from open-ended questions and observations based on the participants' experience in completing an online staff development module. This element was designed to identify data that would be helpful in revising the modules and/or contribute to the subsequent framing of recommendations on delivery models. Data for both elements were collected online.

Effectiveness Record Results

The Effectiveness Record process employed represents an attempt to assess the effectiveness of online instruction from the perception of a group of stakeholders who have a common goal. In this case the stakeholders were individuals representing different educational agencies in nine states who were engaged in making recommendations on strategies for large-scale implementation of online staff development. Thus, the specific goal was to assess the effectiveness of online instruction in the process of determining its application to online staff development.

The rationale for building an Effectiveness Record based on the perceptions of participants in the beta testing was that all participants (a) would be basing their responses on the same online instructional design and technology features, (b) had the same frame of reference in that the context was online staff development, and (c) completed the experience within the same time frame and with a similar level of support.

Each participant was asked a series of questions organized into four categories:

- Importance of the characteristics of online instruction
- Response to online module design
- Contributions of Orientation and Support level features to learning
- Contributions of Lesson level features to learning

Participants responded to each question using the following 5-point scale:

5 points	Strongly Agree	(sa)
4 points	Agree	(a)
3 points	Uncertain	(u)
2 points	Disagrees	(d)
1 point	Strongly Disagree	(sd)

Importance of the characteristics of online instruction. Seven characteristics of online instruction were identified (see Table 4). Each attribute was embedded in the design used to create the online modules that were tested by the participants. As noted in Table 4 the mean scores ranged from a high of 4.86 for the flexibility of being able to work on online instruction when convenient and the ability to make hard copies of any feature of a module to the usefulness of media, which received a mean rating of 3.98.

Table 4
Importance of Characteristics of Online Instruction

	sa	a	u	d	sd	Mean Score
Review in original form	25	23	2	1	0	4.41
Work when convenient	45	5	1	0	0	4.86
Work where I want	42	7	2	0	0	4.78
Have immediate access	38	11	2	0	0	4.71
Can make hard copies	43	8	0	0	0	4.84
Can review at any time	45	5	1	0	0	4.86
Media is useful	7	37	4	2	0	3.98

$\underline{n} = 51$

Table 5
Responses to Selected Design, Usability and Instructional Features of Modules

	sa	a	u	d	sd	Mean Score
Were easy to set up and start	29	19	0	2	1	4.43
Were easy to use	29	19	2	1	0	4.49
Were instructionally well designed	24	22	4	1	0	4.35
Kept my attention/interest	12	28	6	5	0	3.92
Helped m understand content	24	24	2	1	0	4.39
Had meaningful graphics	4	21	12	13	1	3.27
Would help develop my skills	22	24	3	1	0	4.34
Are effective delivery approach	22	21	6	2	0	4.24

$\underline{n} = 51$

The consistently high rankings of the selected characteristics of online instruction reflect perspectives that are learner-oriented. Thus, they relate to aspects of online instruction that are generalizable to most models of online instruction. In looking at the mean values, the fact that while they are all comparatively high, the usability of media was the lowest warrants consideration. Developing of multimedia resources is very costly. If, after further study, it is determined that the use of multimedia does not add significantly to the effectiveness of online instruction for adult learners, significant resources and time could be saved by minimizing the use of media in online instruction for adult learners. On the other hand, this ranking may be more related to the nature of the specific multimedia embedded in these modules than the general use of multimedia in online instruction.

Response to online module design. There were eight items in this series. As noted in Table 5, the mean scores ranged from a high of 4.49 for ease of use to a low of 3.27 for the contributions of graphics to their learning. The lower ranking for the instructional effectiveness of the graphics may be associated with the specific graphics or the graphic style associated with these modules. Graphics were integrated into the multimedia features of the modules; thus, this relatively low ranking for graphics may be related to the similar ranking given to the use of media, reported in Table 4. This uncertainty about the value of graphics adds to the need for further study of the value of media and/or the type of media that is most applicable to online instruction designed for adult learners.

Table 6
**Perceived Values of Orientation and Support Feature
to Learning by Participants**

	sa	a	u	d	sd	Mean Score
Introduction	16	34	0	0	1	4.25
Critical questions	18	27	6	0	0	4.24
Content map	12	28	6	5	0	3.92
Structure	17	25	6	2	0	4.14
Help	8	26	15	2	0	3.78
Syllabus	23	26	1	1	0	4.39
Research	22	18	8	1	2	4.12

n = 51

Tables 6 and 7 report data on items that are directly related to features in the module design tested by participants. All features in the design are addressed with the exception of the Practice feature, which was not included because it is carried out following completion of the module. In this test, students were not required to do the Practice as the test was conducted following the end of the school year and most practices exercises involved applications in the classroom.

The module design consists of four levels: Orientation, Support, Lesson, and Practice. The Orientation Level consists of the Introduction, Critical Questions, and Content Maps. These features provide information helpful to the students in getting started. They may return to the Orientation Level occasionally. The Support Level includes the Syllabus and an aggregation of selected features from the Lesson Level, i.e., Readings, Glossary, Directed Questions and Assessments. The Support Level represents an easy accessible source for review once the module

has been completed. The Lesson Level includes the primary instructional features, i.e., Outline, Notes, Glossary, Readings, Advance Organizer for the Lecture, a Mediated Lecture, Activities, Directed Questions and Assessment. The Practice Level allows students to apply what they have learned from the module. Each module averaged about four lessons.

Table 7
Contributions of Lesson Features to Their Learning

	sa	a	u	d	sd	Mean Score
outline	27	20	3	1	0	4.43
notes	30	18	2	1	0	4.51
glossary	26	22	2	0	0	4.48
readings	17	19	8	1	4	3.90
preview	22	19	6	4	0	4.16
presentation	37	12	2	0	0	4.69
activities	20	28	2	1	0	4.31
directed quests	25	22	4	0	0	4.41
assessment	27	15	6	3	0	4.29

n = 51

Beta Test Audit

Like the data collected via the Effectiveness Record, the data for the Beta Test Audit were derived from an instrument available to all participants online. The primary difference is that whereas the Effectiveness Record was based on structured questions requiring quantifiable responses, the Beta Test Audit results were derived from responses to open-ended questions or unstructured opportunities to report observations on the beta test experience. Thus, the data were in a qualitative format and not subject to tabulation in the same manner as the Effectiveness Record data. The compilation of results required some knowledge of the beta testing process, the module design, and the content. Additionally, it was important to understand how the results would be used in the revision process to be able to prepare the results summary in a maximally useable form. The audit results were prepared by selected members of the eDL production staff.

The production staff first transferred the raw data verbatim to a word document. The statements were then aligned with the module they addressed, and each statement was coded to ensure that it could be traced to the exact location in the appropriate module. When changes were required, a brief descriptor characterizing each comment or suggestion was inserted in the border of the record to serve as a cue to the staff reviewing the data. Once completed, the results became the focus of staff meetings to determine any revisions warranted. Figure 1 includes an excerpt from the sample Beta Test Audit report prepared on the staff development modules as a result of this beta test. The sample reflects the early stages of the audit. As actions were taken based on the data, they were recorded in the space on the border.

Staff M1	<p>I found the content to be well grounded in research.</p> <p>Perhaps because the modules are trying to reach both individuals with experience and novices, I found the introductory material to be more than needed. Some of the content was very basic.</p> <p>Adding more interactivity to the module could be helpful.</p>	<p>Research-positive</p> <p>Content too basic</p> <p>Review interactivity</p>
Staff M2	<p>Enjoyed the assessments - kept me on task and forced me to pay attention.</p> <p>Reading so much text could be difficult for staying on task.</p> <p>RealPlayer: I could not get it to work therefore I had to use the text version. That makes it much more tedious to work through the module.</p> <p>I liked being able to preview the notes and outline/syllabus.</p> <p>I would have liked more Practice activities for applying the knowledge and links to web sites.</p>	<p>Assessment – positive</p> <p>RealPlayer problem</p> <p>Review practice activities</p> <p>Consider links</p>
Staff M2	<p>Look forward to making these available on a large scale.</p>	
Staff M4	<p>This was a very easy (friendly) site to navigate with very few glitches. Makes me want to participate in more of the same.</p>	<p>Very friendly</p> <p>No problem</p>
Staff M4	<p>Typo in glossary: Functional Vocational Rehabilitation: add “s” to “interest.”</p> <p>Typo in glossary: Person Centered Planning: add the word “it” after “because.”</p> <p>Where are the two handouts in Lesson II?</p> <p>Typo: Lesson II Assessment: Number 5 add “s” to “meeting.”</p> <p>Typo: Notes for Lesson 3: Number 5: “environment” misspelled.</p> <p>Typo: Lesson 3: Self-Determination Section: Why is “self-advocacy” capitalized when underlined?</p> <p>Typo: Lesson 3: Conceptual Module for Self-Determination.</p>	<p>Check all typos. Make corrections. Verify corrections.</p> <p>Check content</p> <p>Format-positive</p>

Figure 1. Excerpts from sample beta test audit report

Summary of Beta Test Process and Results

In any beta test, decisions must be based on how to interpret results and improve the program. Needed revision is rarely evident based on test results or quantitative data alone. Each situation and subjective comments require careful study. The revision process must consider staff input based on their experience and access to new technologies. The goal is to improve all elements of the product knowing conditions under which it will be used. It is important to know the technology capacity of schools where online staff development will be offered and whether teachers will do much work on the program at home. While you do not produce online staff development for the lowest common denominator in terms of available technology, it is important to strike a balance that ensures maximum access for the target audience.

It is not uncommon in beta testing that some participants will immediately want to implement the program and in the process identify additional information that is shared. That was true in this case as well. Shortly after completing the beta test, three states opted to use selected modules for staff development. In each case they offered additional suggestions based on their early experience that resulted in minor modifications, but ones that were important to them. Beta testing, while structured, must be considered a rather open system. For example, anecdotal information may lead to modifications equal in importance to the results of systematic testing with large numbers of participants. It is difficult to predict the best sources of good information. Sometimes the best suggestions come from naïve users, at other times from the most sophisticated and experienced user. In all cases, the developer must decide the significance of each suggestion or concern.

For the eDL, the Effectiveness Record and the Beta Test Audit combined with staff input continues to evolve as a model. Thus, with each development project the staff continues to refine the beta testing procedures. The newness of online instruction, especially its application to staff development, presents a number of challenges. That is, decision makers' expectations are sometimes ahead of the technology. Few people are experienced in developing online instruction to be taken to scale. Often the assumption is made that because they are able to employ a particular feature in their school or on their campus it is applicable nationally. In reality, taking online instruction to scale introduces the most significant challenges. In addition, personal preferences enter into the testing process along with views that are not supported by research. That is, because they reflect what may be seen in the popular media many assume that they are essential to mediated online instruction.

When interpreting beta testing results one is faced with having to make judgments on which suggestions or data warrant revision or addition to the original instructional program. The decision is seldom clear. There are always conditions that may explain why the concern occurred or minimize the significance of the suggestion. On the other hand, in some cases what may appear to be a minor suggestion that comes from a single user may, after careful consideration, be found to be highly significant.

When interpreting the results of beta testing, the eDL staff has found that questions such as the following must be considered in examining each suggestion or concern:

- Is this a design, technical or content concern?
- Is this a systematic concern or an isolated issue?
- Is this a personal preference concern?
- Are additional data available to support this concern?
- If it is a content concern, can it be confirmed?

- Is the focus of the concern something that is intentional and previously explained?
- How important is making the correction compared to the cost and implications of not making it?
- If it is technical, is it correctable?
- Is the concern user-related?
- Is the concern clearly communicated?
- Has the concern already been addressed?
- Does staff judgment support making the revision?
- How does the concern relate to responses from previous beta test results?

As noted, this beta test served two purposes: (a) to improve the quality and usability of the online modules for staff development and (b) to inform the process of determining the potential effectiveness of online staff development and framing recommendations for the implementation of online staff development on a statewide basis or at scale nationally.

The nature of the revisions made as a consequence of the beta test took several forms, although most were in the form of edits of features that were found to be distracting; in some cases these were substantive. Some content modifications occurred as a way of offering clarification. Also, incomplete citations were corrected. No instructional design changes were made, but some graphic design changes were included in the final version. While the multimedia was not changed, the results of the beta test supported the need for further research to study the importance of multimedia resources on online instruction for adult learners. The results related to informing the deliberations of participants in the project in making recommendations on implementation (i.e., delivery of online staff development at scale) were significant. They were factored into the design of the Barriers/Solutions Study and the Parameters of Online Staff Development Study. The results of these studies eventually influenced the framing of recommendations by maximizing the information available to participants (Meyen et. al., 2002).

Lessons Learned

1. Participation in beta testing is an effective approach to understanding online staff development.
2. Professional educators in different roles are able to reach consensus on the effectiveness of the specific features of online instruction that are applicable to online staff development.
3. The configuration of quantitative (Effectiveness Record) and qualitative (Beta Test Audit) yield significant benefits in a planning process targeted to taking an online staff development program to scale.
4. The process of compiling beta test results and framing reports allows production staff to gain insights from the perspectives of the respondents.
5. Participation in beta testing facilitates communication among planning participants.
6. Requiring beta test participants to respond to inquiries on each feature of the online instructional design results in greater understanding of the overall instructional model.
7. Open-ended qualitative items allow the production staff to focus on individual responses that otherwise might have been overshadowed in an aggregate analysis.

8. What may appear to content authors as minor error of omissions may be perceived by practitioners as significant and, therefore, warranting correction.
9. Beta testing can be carried out in a timely manner and the response cost reduced is systemic and effectively monitored.
10. Beta testing can yield data that result in the framing of questions for subsequent research (e.g., the value of the multimedia presentation of content versus text.)
11. Participation in beta testing is an effective way for individuals to understand the features of an online instructional model. It also appears to build confidence to interact in discussions of online staff development.

Conclusion

The beta test study was designed to help inform the multi-state planning process. Two additional studies were conducted for the same purpose but not reported in this paper. They addressed potential barriers to online staff development and the identification of conditions essential to successful online staff development. There were fifty-one participants in the beta test. The test was conducted prior to the development of the implementation recommendations by the planning group. The focus of the beta test was on the characteristics of online staff development, features of the design, and content. Two strategies were employed in conducting the beta test. One involved a quantitative process for an Effectiveness Record approach and the other was a Beta Test Audit. The focus of the first strategy was on evaluation each feature in the online model and the perceptions of participants. The second involved qualitative techniques of collect data in the form of observations and insights of participants in a narrative and anecdotal format.

ACKNOWLEDGMENTS

Preparation of this article was supported in part by the Office of Special Education Programs in the U.S. Department of Education. Recognition is due to Cheryl Harrod, Meng Yew Tee and Dan Spurgin of the e-Learning Design Lab staff and to the Center for Research on Learning and the Information & Telecommunication Technology Center whose collaboration created the e-Learning Design Lab.

References

- Beyer, B.K. (1995). *How to conduct a formative evaluation*. Alexandria, VA: Association for Supervision and Curriculum Development. (ERIC Document Reproduction Services NO. ED 391830).
- Bodily, S., & Mitchell, K.J. (1998). *An educator's guide to evaluating the use of technology in schools and classrooms (on-line)*. Available at: <http://www.ed.gov/pubs/EdTechGuide/appa.html>.
- Boyers, K. (1997). Lessons from your desk. *Association Management*, 49, 1997, 50-53.
- Maslowski, R., Visscher, A.J., Collis, B., Bloeman, P.P.M. (2000). The formative evaluation of a web-based course-management system within a university setting. *Educational Technology*, 40(30), 5-19.
- Meyen, E.L. (2002). *Final Report: The Online Academy* (Office of Special Education Programs, U.S. Department of Education. Lawrence, Kansas: Center for Research on Learning – University of Kansas.

- Meyen, E.L. (2003). *Final Report: Online Delivery Model Project* (Office of Special Education Programs, U.S. Department of Education. Lawrence, Kansas: Center for Research on Learning – University of Kansas.
- Meyen, E.L., & Ramp, E., Harrod, C.A., & Bui, Y.N. (2002). A national assessment of staff development needs related to the education of students with disabilities, *Focus on Exceptional Children*.
- Meyen, E.L., & Yang, C.H. (2003). Barriers to Implementing Large-Scale Online Staff Development Programs. *Online Journal for Distance Learning Administration*. In press.
- Meyen, E.L., & Yang, C.H. (2003). Parameters of Online Staff Development Study. *International Journal of Instructional Technology and Distance Learning*. In press.
- Meyen, E.L., Aust, R.J., Bui, Y.N., Ramp, E., & Smith, S.J. (2002). The online academy formative evaluation approach to evaluating online instruction, *The Internet and Higher Education*, 5, 89-108.
- Meyen, E.L., Aust, R.J., Bui, Y.N., Ramp, E., Smith, S.J. (2002). The online academy formative evaluation approach to evaluating online instruction. *The Internet and Higher Education*, 5, 89-108.
- Texas A & M University, Instructional Technology Service (ITS). How to design your course. Retrieved 7/12/03 from <http://www.tamu.edu/its/consult/howtodesign.htm> (n.d.)
- Youngman, T., Gotcher, L., Vafa, S., Dinsmore, S., & Goucher, O.B. (2000, February). *A university design team approach: Developing courses for on-line distance education*. Proceedings of the Society for Information Technology and Teacher Education International Conference, San Diego, CA.

About the Authors.

Edward L. Meyen, Ph.D., is a Budig Teaching Professor for the Department of Special Education at the University of Kansas and the Co-Director of the e-Learning Design Lab. The Lab is a joint venture with the School of Engineering and the School of Education.

Ronald J. Aust, Ph.D., is Associate Professor in the Department of Teaching and Leadership at the University of Kansas. His research and development in the e-Learning Design Lab focuses on user interfaces and instructional design.

Chien-Hui Yang is a Ph.D. student in early childhood special education and a graduate research assistant with the e-Learning Design Lab at the University of Kansas.

Contact Information:

Ed Meyen, e-Learning Design Lab
University of Kansas
1000 Sunnyside Avenue – Suite 3061
Lawrence, KS 66045-7555
Tel. 785-864-0675 E-mail: meyen@ku.edu

Editor's Note: If it is true that we tend to teach the way we were taught, then it is also true that initial experience with distance learning as a student will benefit faculty who subsequently teach at a distance. Online teaching for orientation and professional development of faculty is explored in this pilot research at the University of South Australia. It provides interesting anecdotes on the attitudes and expectations of faculty regarding the future role of distance learning in higher education.

Online Professional Development in Support of Online Teaching: Some Issues for Practice

Karah Hogarth, Ingrid Day and Drew Dawson

Keywords

elearning, professional development, staff experiences, professional practice, distance education, higher education, online learning, best practice, university education, community of practice, situated learning, staff development

Abstract

This paper reports on a pilot study at the University of South Australia. The study explored the experiences of academics undertaking a professional development (PD) program delivered partly online. University teaching staff are in a unique position to experience and understand the consequences of learning online as part of their PD requirements and this study generated insights into how this experience is fed back into professional practice. In addition, this study reports on the motivations of academic staff interested in elearning as a delivery method and their beliefs about its place in the higher education system. Through examining the stories of staff experiences of online PD, a number of issues are highlighted that could inform development of future online PD courses, particularly those aimed at supporting development of staff competency in online teaching. In particular, issues of access, support for interactivity, and sharing of best practice are raised.

Introduction

Australian universities exist in a climate of global and local change that is increasingly informing the ways in which they do business. Reductions in public funding, the internationalisation of education, the entry of market forces into the higher education industry, an increasingly diverse student population, and new and emerging technologies (Herbert, Hannam, Chalmers, 2002; Taylor, 2000; Mayes, 2001; Alexander, 2001; Weigel, 2000) have all been drivers of the changes in the university sector. In addition, competition from non-traditional education providers is contributing to a university system that is gradually losing its monopoly on the delivery of higher education (Alexander, 2001). These challenges have contributed to a growth in elearning in the sector, which has important consequences for how professional development (PD) initiatives are deployed in universities. O'Reilly & Brown (2001) note that, while traditionally treated as a rhetorical or remedial approach to teaching and learning support, PD initiatives are now being reconceptualised in the face of pervasive technological change in order to allow staff to have first-hand experience with new teaching methods: '... it is critical... for staff to know at a visceral level what it means to be learning in a technology-mediated environment'. Further, Alexander (2001) notes:

Management support... [is] critical, thus highlighting the importance of an elearning plan for the institution, and for the communication of that plan to all levels of the university so that elearning activities are valued rather than seen as detracting from the 'real work' of the department.

Universities are responding to this need. A review of the literature highlights a number of case studies of such PD courses (see for instance, O'Reilly & Brown, 2001; Johnson & Warren, 2002). In addition, Taylor (J, 2003) describes a University of Southern Queensland PD initiative grounded in the principles of situated learning. Consistent with these principles, universities must address the ways in which their PD programs, aimed at improving online teaching outcomes, are perceived and experienced. This is central because, as Billett (1998: 257) points out, situated learning is heavily influenced by the culture of a specific community. Staff attitudes to elearning may therefore be core determinants of the degree to which staff engage with PD programs in support of this delivery method.

This paper reports on a pilot study at the University of South Australia (UniSA). The study explored the attitudes and beliefs of academics undertaking a PD program incorporating some element of online delivery. University teaching staff are in a unique position to experience and understand the consequences of learning online as part of their professional development requirements. While an increasing number of workers encounter PD online in the workplace (for example, Boggs, 2003; Eklund, Kay & Lynch, 2003), University staff are in the unique position of being able to feed their personal experiences of this medium of delivery directly back into their professional practice. In addition, the conditions of the study provided the opportunity to gauge the opinions and beliefs of University teaching staff who had deliberately opted to learn more about teaching online. The study therefore generated feedback from a self-selected interest group about (a) their beliefs about teaching online and its place within the higher education system, (b) their reasons for choosing to engage in this medium as both a teacher and a learner, (c) their experiences of learning online as part of a professional development course, and (d) the ways in which their experiences of learning online might feed back into their practices for teaching online.

'Teaching @ UniSA'

The PD course chosen as the site of the study was 'Teaching @ UniSA', an advanced induction and basic skills development initiative. While 'Teaching @ UniSA' will ultimately become a requirement for all new staff, at the time of the study participation was voluntary and, for sessional staff, subject to invitation. The course is delivered by four professional developers and consists of nine modules, covering topics such as 'What is learning?', 'How can I judge quality in my teaching and courses?', and 'How can I teach more effectively online?'. It is designed to be delivered over two days of face-to-face seminars, followed by one 2-hour follow-up session and nine hours of 'out-of-session' activities, some of which involve online work. The 2-hour follow-up is held to 'keep the ball rolling' on the out-of-session activities, as well as to provide additional opportunities for staff to build scholarly relationships.

Staff are required to complete the out-of-session activities for three modules of their choice. The PD staff allow them several months in which to do this, reflecting the assumption that the out-of-session activities will be assigned a low-priority by the academic staff. As a PD staff member commented for this study, academic staff do not attach the same status or significance to PD (especially that related to teaching and learning) as do, for instance, members of the medical profession where it is a requirement of continued registration.

The particular focus of this study was module nine: 'How can I teach effectively online?'.

Module Nine: 'How can I teach more effectively online?'

The module 'How can I teach more effectively online?' reflects UniSA's strong commitment to the use of technology in the flexible delivery of teaching and learning. This long standing commitment is manifested in UniSA's corporate planning documents, where 'flexible delivery' is assigned a high priority and is viewed as a strategic enabler of the University's other teaching and learning goals. Further, all UniSA courses are required to have an online presence. The *Teaching and Learning Strategy 2004–2006* states: 'The extent of online activity varies from programs which can be studied online from enquiry to graduation, to those where there is a limited online engagement'.

There is also strong word-of-mouth reinforcement of the University's policies regarding flexible delivery and online learning. The PD team therefore saw module nine as an essential component of 'Teaching @ UniSA' and conceptualised it as an opportunity to introduce the first principles of elearning, focussing on the pedagogy of online delivery, rather than the procedural or technical knowledge required to author sites on UniSANet, the University's online teaching environment. Because the University's policies regarding online delivery are so widely understood, the PD staff also felt that an introduction to these expectations, including a justification of them, was unnecessary. In addition, PD staff were conscious that the University's academics assume a high degree of autonomy in delivering their courses online, making pedagogical assistance particularly useful given that academic staff are not 'elearning designers' *per se*.

The out-of-session activity for this module was structured to emphasise the crucial importance of the design stage in online delivery. A large proportion of it was paper-based in order to emphasise the important 'offline' work that goes into online teaching. Completed activities were then posted on the online discussion board which could also have been used for communication and collaboration, although the module's facilitator did not particularly promote it for these purposes.

Data Collection

The study took place over the non-teaching period in summer 2003–2004. Interviews were sought with staff members who signed up to complete the out-of-session activity for module nine. At the time of the study, 11 staff had signed up and six volunteered for interview. Of the six, five had completed the out-of-session activities, and one had withdrawn after signing up, choosing to complete a different module instead. The interview data for this person was retained given the exploratory nature of the study and because it enabled insight into the experiences of someone partially engaged with online learning, as represented by the oscillation between participation and non-participation in the module. Interviews lasted between half an hour and forty-five minutes and were semi-structured in order to cover any unanticipated territory, a particular aim of the study.

Some emergent themes generated from this preliminary data will now be discussed and avenues for further research or consideration offered up.

Beliefs about elearning in higher education

Participants held strong views about UniSA's strategic and long-term use of elearning and all agreed that elearning is central to UniSA's future directions. Five out of the six cited being able to teach online as important for future employability and noted this as a factor motivating them to participate in the module. The following exchange is representative of the responses obtained when participants were asked if they thought the University had an online teaching focus:

KH: Do you think it's likely then that you will want to put your courses more completely online?

Y: Oh, I'm sure that's what they'd love us to do.

KH: Why do you think that?

Y: 'Cos it's cheaper and it's... you can get it out there to a lot of students in a short period of time, there's no bums on seats. So I think it's something of course they're going to press for, you know.

It emerged that participants closely associated teaching online with teaching offshore, consistent with UniSA's approach to using flexible delivery as an enabler of other strategic goals, such as internationalisation. When asked why they believed UniSA placed an emphasis on elearning, participants commented: 'it's just common sense', 'it's necessary to be part of the global market', 'it's the way of the future', 'like it or not, the world is going to go more online', and so on. These strong and universally held beliefs occurred regardless of the participants' own attitudes to elearning as a teaching method and are consistent with Clegg, Hudson and Steel's (2003: 39; also, see Keep, 2002) assertion that elearning and supporting technologies are increasingly seen as *fait accompli* to the 'irresistible power' of the forces of globalisation. This was further reflected in the interview data, with participants' comments revealing a readiness to characterise the higher education sector as a marketplace, and to recognise this as a driving factor behind the PD:

R: ... by improving the teaching the students are more satisfied, they're our customers, so you've got a better chance of getting more students coming and enrolling in subsequent years. I think it's very important.

This echoes Schofield's (2003: 170) findings. In a series of case studies addressing the corporate use of elearning, she noted that interviewees were well able to articulate the link between elearning and corporate strategy, just as R does above. Further to this, participants showed a high degree of engagement with 'cost-effectiveness' concerns, demonstrating that the view of elearning as a 'cheaper' delivery option was widespread amongst the participants.

Five out of the six participants held positive views about elearning as a teaching method. This high level of approval is consistent with the self-selecting nature of the participant group. Participants revealed a well-developed philosophy as to when the use of ICTs was appropriate. This is despite the fact that only two participants had a reasonably advanced online supplement to their courses, and that most delivered teaching primarily face-to-face. The high degree of thought given to the appropriate use of ICTs for teaching possibly reflects the participants' beliefs that this delivery method will inevitably become more prevalent in the future. The subject matter being taught was the most often cited factor determining participants' attitudes to the appropriateness of elearning use.

This preliminary data therefore reflected a very strong and widespread expectation amongst academic staff that the use of ICTs for teaching in the future will be not only required but inevitable, driven by the need to match the expectations of students and to win them in the global higher education marketplace. Participants were further able to articulate a personal philosophy about when elearning use is and is not appropriate for teaching.

Staff experiences of learning online

As mentioned above, the site of the study was thought to be a particularly rich environment for the generation of reflective insights by teaching staff who are themselves immersed from a student perspective in elearning. However, the interview data revealed a low degree of engagement by staff with the interactive online features, to the extreme that one participant stated:

A: ... I don't classify that as online, what I did. All I did was submit something to a discussion board. And to me that's not... I've done that before.

While this is consistent with the ways in which the out-of-session activity was conceived, this comment suggests there may have been a conflict between staff expectations of module nine and the function for which it was designed. As discussed above, staff were required to submit completed activities to the discussion board, which was then available as a forum for communication, although it would not be facilitated as such. No participant utilised the board beyond this initial requirement. One participant remarked: 'I can't see what people would have wanted to talk about', while another expressed dislike of online chat. However, another participant, a staff member who delivers a relatively sophisticated online supplement to his face-to-face teaching, tried to extend the use of the discussion board:

E: ... I thought of interacting with the other members in module nine by... actually I had muted an idea of developing course online content, then I had put forward a proposal of giving security to the other people, so that they can view what I had developed, and similarly vice versa. I could see theirs. But there was not much response so...

It should be noted that the facilitator for module nine had 'limited expectations' for how much the discussion board would be used by staff. However, what remains interesting about the lack of engagement with this interactive feature is the fact that discussion boards are very common features of the participants' own online supplements on UniSAnet. Of the participants who are currently teaching, only one has not included a discussion board in the course supplements. Given the participants' own tendency to avoid using this feature in 'Teaching @ UniSA', interview data was reviewed in order to explore the degree to which this experience fed-back into the way staff viewed the discussion boards they provided to their own students.

What emerged was a curious pattern of staff under-valuing the consequences of non-participation in online interaction, as well as an under-valuing of the effects of technological difficulties if they arose. No specific evidence was found that staff lack of engagement with online tools led to insights into student lack of engagement with online tools, despite the fact that staff admitted their own discussion rooms were often under-utilised. What did emerge, however, was that the primary method staff were planning to integrate to their online teaching in order to encourage student participation, was to make submission to discussion boards a feature of assessment. While this clearly worked in the basic sense for staff's own participation, no one commented on the very superficial level of engagement it generated, nor foresaw this as a problem for their own students' engagement.

In addition, several technological difficulties were encountered by staff while participating in the out-of-session activities. Interestingly, these very same difficulties were glossed over when participants were asked how their experiences of learning online would affect the way they teach their own courses online. One participant encountered a password access problem (for a module other than module nine) that 'took weeks' to resolve and clearly prevented him from completing course requirements. Later in the interview, this exchange took place:

KH: ... is there anything specific out of your experience as a student [online in this PD course] that you might want to put into your [online] teaching? ... For instance, with the technical difficulties that you had accessing the [out-of-session activity]?

H: Well, that was just a question of password availability.

KH: Yes.

H: Once I got into the [out-of-session activity] that was no problem.

Five other such instances of technological difficulty emerged from the interview data. One instance involved a participant talking positively about video conferencing software that could be

used to overcome distance, while also admitting that it was not used because ‘It isn’t particularly behaving itself. It’s an untapped resource’.

Further examples include the participant who was unable to post to the University network because of cross-platform problems which required the extended help of an IT person to resolve. These examples are interesting, not because they highlight the regularity of technological problems disrupting intended use, but because they hint at the low degree of significance attached to these instances by the participants. H’s comment above implies that the technological difficulties do not matter much if the learning activity itself is sound, however, he stated that to get the access problem resolved, the facilitator for that module had to ‘muck about with computer people, getting websites changed’. In another situation, of course, the participant himself may be the facilitator with responsibility for ensuring his students can access his set materials.

One possible explanation for this under-valuing of the difficulties associated with technology is that these comments came from the participants who either currently had no online presence (because they were not currently teaching) or had a very limited online presence. The two participants who provided an online supplement that was reasonably sophisticated spoke of technological limitations, but in an entirely different light. They spoke of the limitations UniSAnet placed on them in terms of installing automatic quizzes, of allowing them to present PowerPoint files in html format and so on. This suggests that with experience, staff may develop a greater appreciation for the limitations of technology and that greater understanding of these limitations will naturally come with greater use. It may be worthwhile considering why technological difficulties encountered in the student role did not have this effect. Further, this suggests that staff just beginning to deliver online teaching may need to be better prepared to attach the appropriate significance to technology that works well and hence limits disruption to student learning experiences.

The need for sharing of best practice

One final point to emerge very strongly was the need for staff to have opportunities for sharing and reviewing each other’s practice. While module nine was intended to introduce staff to the pedagogical concepts behind online delivery, specifically in the planning stages, some staff expressed the wish to be able to see these concepts put into practice. These findings support those of Johnson and Warren (2002), who noted the benefits of PD sessions, while arguing that:

... the challenge was to integrate the use of a range of information and communication technologies into teaching practice.

One participant in this study stated that before beginning module nine, her conception of online teaching was ‘putting lecture notes, just basically text material [online] and having some discussion boards’. This conception, she felt, needed to be further informed to include interactive instructional elements, however, in her view she remained unenlightened after the PD course due to the lack of specific examples of practice provided. Asked if she would feel comfortable approaching colleagues with well-developed online courses for help, she replied:

A: Well, I have no way of knowing who those people are. I would if I knew but I don't. I just don't know who's doing it well. I have no idea where to go to find out.

Her comments echo those of E, quoted above, who tried to instigate enforced sharing via the discussion board so that participants could learn from each other’s practice. Both these cases reflect the positive experience of R, who spoke enthusiastically of his past experiences as a student learning online (not in the PD, but elsewhere), and viewed this as an important step in developing good online teachers.

KH: Do you feel it's useful then for people that are going to teach online to have some experience of learning online?

R: Absolutely, because how do you know what to present your students with if you've never had the experience of being a student? I mean, you know what works and what doesn't as a learner, and I think that's important.

This preliminary feedback therefore suggests that staff may value and find highly useful the opportunity to share examples of best practice with each other and that these opportunities may require some help from management in order to be generated. A, for instance, is not aware which of her colleagues is a good online practitioner and it is foreseeable that this may be the case in many schools where opportunities for sharing are not explicitly created or enforced. Further, while R is positive about giving staff the opportunity to learn online before they teach online, he felt that the three hour out-of-session activity for module nine was too short to create an authentic experience. This comment also needs to be read in light of the fact that the facilitator for module nine specifically wanted to emphasise the offline planning component of teaching online. However, R's comment may still point to an unfulfilled need in the teaching population and may also help explain why staff did not utilise the discussion board beyond the basic requirements.

A permanent arrangement for the sharing of best practice examples among teaching peers may facilitate continual learning and improvement of online teaching methods. E suggested something along these lines:

E: I feel that still more time is required because I want this to be a hands on experience... Here was a very good starting point to learn what it is all about... next time that I attend, instead of a broader session like this, think of, for example, four intensive sessions.

While E is suggesting a formalised PD arrangement, such extended support could take varying forms, for instance, a more informal interest group, or a series of occasional seminars. Any such arrangement could additionally help facilitate network-building between expert practitioners and novices. This communal sharing of knowledge is an essential feature of the situated learning discussed widely in the literature and initially proposed by Lave and Wenger (1991). At the core of this theory is the principle that learning occurs 'within a social context of participating in a community's activities' (Gallivan, 2000: 58). A's statement that she did not know which of her colleagues to go to for help therefore suggests that, for her at least, the essential informal opportunities for learning could be better facilitated. This is important as informal learning opportunities provide the genesis for a significant proportion of the professional knowledge held by workers (see for example, Cross, 2003).

It should be noted here that UniSA does provide additional support services for staff who want to teach online. Crucially, apart from one aspect of this support, no participant demonstrated knowledge of these options when specifically asked where they would go for help if they needed it. While investigation of this issue was beyond the scope of the study, the interview data suggests that staff either have a low level of knowledge relating to the support services on offer or that they do not consider the support services relevant or comprehensive enough. This apparent lack of engagement with the other support services is also reflective of the 'go it alone' perception that is attached to teaching online, both by staff themselves, and the professional developer interviewed for this study. This is an area that may benefit from subsequent investigation.

Conclusion

This paper reported on a pilot study at the University of South Australia. In particular, the aim of the study was to investigate staff attitudes to elearning, both as a teaching method that is increasingly widespread, and as something they themselves experienced first-hand through their participation in an online PD module. It is suggested that both of these factors may impact on the ways in which the PD program is itself received, as well as the ways in which staff go on to utilise elearning in their own practice. In addition, the study addressed some of the underlying assumptions staff members bring to discussions about elearning in higher education, and found these assumptions to be heavily influenced by the prevailing rhetoric associated with ICTs in educational policy, as well as word-of-mouth about University policies.

From this preliminary investigation, a number of areas for potential further inquiry have been highlighted. Given the small number of participants, further investigation is required to gain insight into the extent of the issues discussed here. However, a range of interesting issues for practice emerged from the study. For instance, universities may wish to consider what ramifications the strong staff beliefs in the inevitability of elearning use in higher education have for practice and the ways in which this kind of delivery is approached and evaluated. What should be encouraging, however, is the high degree of informed opinion about the appropriate use of elearning already circulating amongst the research group, albeit a self-selected interest group.

The pilot study produced insights into the ways in which learning online may feed back into academic practice for teaching online. In particular, the study highlighted a number of areas where PD programs may be able to focus attention in order to optimise staff's reflective insights. In this study, these areas included the lack of staff engagement with online interactive features, the technological barriers that interfere with the learning experience, as well as the need for cross-promotion in relation to other areas in the University where support for online teaching can be found.

Finally, a strong pattern emerged from the interview data of staff valuing and desiring the opportunity to share and experience best practice examples of online teaching generated by their peers. In this study, what was desired was clearly the opportunity to engage in a PD environment that catered for authentic experiences with elearning materials that are of a higher order of sophistication. While it may be paradoxical that staff seemed to desire elearning experiences that surpassed those they currently offered to their students, it nevertheless seems logical that staff be given access to examples of best practice so that they may build upon them in their own teaching.

ACKNOWLEDGMENTS

Thanks go to Margaret Hicks and Matthew Thomas for their assistance with this study.

References

- Alexander, S. (2001). E-learning developments and experiences. *Education & Training*, 43(4/5), 240–248.
- Billett, S. (1998). Constructing vocational knowledge: Situations and other social sources. *Journal of Education and Work*, 11(3), 255–274.
- Boggs, T. (2003). *E-learning grows in workplace*. [Online]. Available: <http://www.thestar.com> [20 November 2003].

- Clegg, S., Hudson, A. & Steel, J. (2003). The emperor's new clothes: Globalisation and e-learning in higher education. *British Journal of Sociology of Education*, 24(1), 39–53.
- Cross, J. (2003). *Informal learning—The other 80%*. [Online]. Available: <http://www.internetttime.com/Learning/The%20Other%2080%25.htm> [14 May 2003].
- Eklund, J., Kay, M. & Lynch, H. (2003). *E-learning: Emerging issues and key trends*. [Online]. Available: <http://www.flexiblelearning.net.au/research/2003/elearning250903final.pdf> [25 September 2003].
- Gallivan, M. (2000). *Examining workgroup influence on technology usage: A community of practice perspective*. [Online]. Available: <http://portal.acm.org/citation.cfm?ed=333356&dl=ACM&coll=GUIDE> [29 July 2004].
- Herbert, D., Hannam, R. & Chalmers, D. (2002). *Enhancing the training, support and management of sessional teaching staff*. [Online]. Available: <http://www.aare.edu.au/02pap/her02448.htm> [2 October 2003].
- Keep, E. (2002). *ICT and its impact on skills and creativity: Transformatory catalyst or dependent variable?* [Online]. Available: http://www.terra-2000.org/Terra-2002/Pages/abstract_prague.htm [5 March 2004].
- Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- Johnson, R. & Warren, C. (2002). *A focus on teaching in online pedagogy*. [Online]. Available: <http://www.aare.edu.au/02pap/joh02092.htm> [2 October 2003].
- Mayes, T. (2001). Quality in an e-University. *Assessment & Evaluation in Higher Education*, 26(5), 465–473.
- O'Reilly, M. & Brown, J. (2001). *Staff development by immersion in InterActive Learning Online*. [Online]. Available: http://ausweb.scu.edu.au/aw01/papers/refereed/o_reilly/paper.html [29 July 2004].
- Schofield, K. (2003). Think strategy: Corporate e-learning in four companies. In H. Guthrie (Ed.), *Online learning: Research readings*. (pp. 163–182). Adelaide: NCVER.
- Schuck, S. (2003). *The eChange Project: Supporting a faculty of education's move to authentic use of information and communication technologies through mentoring*. [Online]. Available: <http://ultibase.rmit.edu.au/Articles/july03/schuck1.htm> [1 October 2003].
- Swetman, D. & Baird, W. (1998). Sustained support for science and math teachers' use of microcomputers. *Journal of Computing in Teacher Education*, 14(4), 13–18.
- Taylor, J. (2003). Managing staff development for online education: A situated learning model. *Journal of Higher Education Policy and Management*, 25(1), 75–87.
- Taylor, P. (2000). *Academic careers in the 21st century: Making sense of new opportunities and challenges*. [Online]. Available: <http://www.aset.org.au/confs/aset-herdsa2000/procs/taylor-p2.html> [1 October 2003].
- University of South Australia (2002). *Teaching and learning strategy 2004–2006*. [Online]. Available: <http://www.unisa.edu.au/pas/qap/planning/planningdocuments.asp> [29 July 2004].
- Weigel, V. (2000). E-learning and the tradeoff between richness and reach in higher education. *Change*, 33(5).

About the Authors

 <p>Karah Hogarth karah.hogarth@unisa.edu.au</p>	<p>Karah Hogarth is a PhD candidate at the University of South Australia. Her doctoral thesis involves the investigation of the factors that lead towards the development of best practice in the implementation of elearning for workplace settings.</p> <p>Contact her at: karah.hogarth@unisa.edu.au</p>
 <p>Associate Professor Ingrid Day ingrid.day@unisa.edu.au</p>	<p>Associate Professor Ingrid Day is Dean of Teaching, Learning and International at the University of South Australia. Ingrid has a background in the use of new technologies for teaching and learning and pursues research interests in the advancement of quality assurance techniques for elearning materials.</p>
 <p>Professor Drew Dawson drew.dawson@unisa.edu.au</p>	<p>Professor Drew Dawson is the Director of the Centre for Sleep Research at the University of South Australia. Drew's varied background includes experience in advertising, marketing, teaching and research, as well as in the use of elearning for the delivery of training in corporate settings.</p>
<p>Mailing address:</p>	<p>Level 5, The Basil Hetzel Institute The Queen Elizabeth Hospital Woodville Rd, Woodville South Australia 5011 +618 8222 7804</p>

Editor's Note: Good teaching practices normally transfer from traditional to distance learning environments. In some instances there are opportunities to accomplish what cannot be done in synchronous face-to-face communication. This study takes the opposing case. Dr. Love attempts to replicate a successful face-to-face model, a debate, in cyberspace. His class experienced technical and communication difficulties that influenced the time required and student motivation.

Online Debate: A Case Study of Combining Traditional Strategy and Online Technology.

Shawn M. Love

Keywords:

online debate, instructional design, collaborative learning, media attributes, online collaboration, online learning, online technology

Introduction

Instructional Designers are constantly faced with new challenges. In a volatile technological environment, online resources seem to lead instructional designers into unknown territory. Often, instructors will attempt to merge online media and instruction in an effort to accomplish a single task. However, instructors must consider the resources they use and the strategy they employ before attempting to combine traditional strategies with online technologies. Merging a traditional debate format in synchronous and asynchronous online environments demonstrate the challenges of merging the traditional with the non-traditional. In this article, an online debate is examined in terms of limited communication methods and suggestions are provided for designing an online debate.

The Case

During the spring semester of 2004 at The University of Oklahoma, nine students participated in a semester-long online debate. The debate was designed by the course instructor who assigned the exercise as a class project for a graduate-level Instructional Design course to be conducted outside the classroom. The purpose of the debate was to expose students to group work in an online environment, but limiting students' communication between one another to only online methods. These methods could consist of both synchronous and asynchronous communication, but all communications must occur only at a distance, meaning no verbal discussions of the debate could occur in a face-to-face environment, including the classroom itself. The result of this exercise was a discussion and analysis of the experiences of a traditional construct imposed on an online platform and the inefficiencies of limited communication modes pertaining to specific tasks relative to time.

The design of the debate was intentional. That is, the debate was intended to use traditional debate principles, yet in a non-traditional environment. The Instructional Design course itself was conducted in a face-to-face classroom where students were exposed to lectures, individual projects, and group work. The debate was conducted between class meetings. Part of a student's grade depended on participation in the online debate. Therefore, the purpose of the overall course was to discuss instructional strategies while the online debate was merely assigned as a group project. The online debate was made relevant by the instructor's objective to expose students to collaborative and cooperative learning in an online group environment. Another objective was for students to actively participate in traditional tasks in a non-traditional environment.

Collaborative learning (group learning) was considered to be the primary learning outcome. However, the strategy imposed by the instructor was meant to limit groups in their communication. This would expose students to group collaboration and cooperation at a distance and simulate a group project in the absence of face-to-face contact.

Construct and Method

The nine students were divided into two groups of four while the remaining student behaved as an impartial debate consultant. One group argued that “media influences learning (known as the “Affirmative Group”) while the second group (the “Con Group”) argued the converse, “media does not influence learning.” Each group was given two articles that represented each argument (Clark, 1996 and Kozma, 1996). Further, each group could add as many as five additional sources of their choosing to bolster their respective argument. These terms were discussed and agreed to by all participants before the debate began.

Students were not randomly assigned to groups, but the course instructor did attempt to match students across the two groups. That is, each group would consist of comparable levels of technical expertise. Therefore, both groups maintained low, medium, and high levels of technological experience. Rather than assigning students to groups on the strength of their beliefs or ability to argue, the grouping intended to simulate a varying degree of technological expertise as a function of group communication performance. The goal was not necessarily to win the debate, but to learn how to communicate in a completely online environment and then analyze the results of tasks attributed to the assignment.

The formal debate utilized the Lincoln-Douglas format and was moderated by both the course instructor and the impartial debate consultant who happened to be an expert in debate principles. The Affirmative Group was assigned the task of stating the initial argument and outlining the claims they associated with “media influences learning.” The basis for the claims was rooted in the assigned article by Kozma (1996). Further claims were added and evidence was provided by citing some, but not all, of the five additional references. Each group was limited to a total of six sources (including the assigned article), so both were careful not to use all their references in their opening statements.

Traditional Debate Design in an Online Environment

The format of the debate intended to follow the Lincoln-Douglas format as closely as possible. The Affirmative team began with the affirmative constructive followed by a cross-examination by the Con group. Then, the Con group provided a negative constructive followed by cross-examination by the Affirmative group. After the initial constructive and cross-examinations, the Affirmative provided its first rebuttal, then the Con introduced its rebuttal, followed by the Affirmative’s second rebuttal that completed the debate. The following section provides a description of the stages of the debate as well as some of the complications and solutions experienced in particular stages.

Constructing Arguments

The Affirmative Group’s initial argument was due exactly one week after the rules of the debate were determined. Their argument was to be posted on a discussion board inside the Blackboard online course shell reserved for the debate itself. Before posting the initial argument, group members explored a number of communication modes in an effort to maximize communication between all four group members. Each agreed to meet in a Blackboard online discussion group at a specific time on a specific day, where a conversation began as a text-based discussion forum. The group found the asynchronous discussion board an inefficient vehicle for synchronous

discussion, so the group moved to a Blackboard chat session hosted by one of the group members.

Though the Blackboard course shell is generally reliable, some students could not connect to the chat session supported by Blackboard. The host of the session then found himself attempting to contact other group members through the discussion board and e-mail. In his message, he suggested that all group members download a third-party chat program that would be compatible with all users' computer systems. Still, this did not solve the problem, as some were confused on how to download and install the software. Therefore, the conversation moved again to the original discussion board. Without discussing a single aspect of the content of the debate, the group members spent considerable time merely attempting to find the best communication mode. The group demonstrated a desperate attempt at minimizing inefficiency.

As a result of the confusion and frustration experienced by the Affirmative Group's attempts to communicate synchronously, a suggestion was made that an asynchronous method should be used. Group members agreed that a circulating document should be distributed among the group members. The document would be created by one person and then e-mailed to all group members. Another would add further content and then redistribute the message to all group members. Once everyone had contributed to the argument and corrections were made, the document was finally posted for the Con Group to read and respond. However, the argument was not posted within the allotted time frame, because the Affirmative Group requested an additional week to finish their constructive argument.

The Con Group read the posting of the argument on the second Tuesday of the debate (exactly two weeks after the debate began). They were charged with responding to the Affirmative's claims by the following Tuesday, as they intended to post arguments and rebuttals on a weekly basis. However, the Con Group experienced the same confusion and frustrations associated with online communications, resulting in a similar type of circulating e-mail document. The Con Group, too, found the task difficult to accomplish within the allotted seven days. They also requested and were granted a one-week extension. This seemed to predict the progress and pace of the remaining elements of the debate.

Cross-Examinations and Rebuttals

According to the debate consultant, a traditional face-to-face debate consists of seven different elements or phases with each phase timed by a moderator. The initial constructive of the Affirmative Group would have used only six minutes employing the traditional face-to-face format. However, this argument was not available until two weeks after the debate began. The same is true for the Con Team. Their cross-examination of the Affirmative's claims would last only three minutes in a face-to-face Lincoln-Douglas debate.

The remaining elements of the debate would take less than a half hour to complete (see Table 1). Therefore, the online debate immediately compromised the time restriction, because the design accounted for a week between posting arguments (see Table 2). Further, groups experienced difficulties adhering to the weekly time constraints.

**Table 1:
Traditional Lincoln-Douglas Debate Format**

Minutes	Activity
6 min	Affirmative constructive
3 min	Cross-examination by Negative
7 min	Negative constructive
3 min	Cross-examination by Affirmative
4 min	1st Affirmative Rebuttal
6 min	Negative Rebuttal
3 min	2nd Affirmative Rebuttal
4 min	Each side is allotted 4 minutes of preparation time throughout the round.
4 min	

**Table 2:
Proposed Online Debate Format
Used In Instructional Design Course**

Week	Activity
Week 1	Affirmative constructive
Week 2	cross-examination by Negative
Week 3	Negative constructive
Week 4	cross-examination by Affirmative
Week 5	1st Affirmative Rebuttal
Week 6	Negative Rebuttal
Week 7	2nd Affirmative Rebuttal
Weeks 8 & 9	allotted for extra time if necessary

An Observation on Non-Verbal Cues and Group Behavior

Over the weeks, the claims stated by both groups appeared to create polarization in interpersonal settings. Though students were quite cordial to one another before and after class sessions, the seating of the students during class said something much different. The class agreed that the content of the debate would be discussed neither face-to-face nor in the classroom, including verbal discussions within and between groups. However, that after reading claims of the opposing group, individuals chose to seat themselves near one another according to group affiliation during subsequent class periods. Further, the classroom consisted of a single conference table, where each group assembled themselves on opposing sides of the table while the debate consultant willingly sat neutral between the opposing sides, close to the head of the table, opposite the instructor. The non-verbal behavior of opposing group members seemed to state quite obviously that the cohesion of group members increased through the shared experiences of attempting the frustrating tasks necessary to participate in the debate.

The seating of individuals was completely voluntary and seemed to speak volumes about the identity of each group. This did not appear to be a result of the instructor's chosen strategy or technology, but rather the amount of time the groups contested one another in the online environment outside the classroom.

Deviation from the Schedule and Attrition

As each week passed, both groups found themselves increasing the duration between producing claims and arguments. More often than not, each group requested an extension or posted rebuttals more than two days late. Both groups appeared to maintain a constant level of increasing frustration. The groups remain polarized in the classroom throughout the semester and participation levels within groups would decrease every week. The group that seemed happiest in any particular class session was that group that did not have an argument due the following week. What had been intended as a nine-week activity had evolved into a time-consuming task that grew much larger than had been anticipated by group members. As content began to take form, some students found themselves consumed more with the debate and the competitive nature of the task than the overall lesson. Others simply became bored or lost interest by the time closing arguments had arrived.

The apparent inefficiency of the online communication methods, when used in the context of the traditional debate format, seemed to contribute to attrition among individuals in both groups. All seemed to understand that if the debate was held in a face-to-face setting, the duration of the event would consist of a mere fraction of the time spent on the online debate. Yet similar informal debates occur daily among many online users. For example, many political message boards on the internet receive post after post of claims, rebuttals, redirects, retractions, and even angry responses. However, the concept of the task made this debate unique in that students agreed to a formal debate with rules and structure and level of participation affected the overall grade in the class. Some tasks are better suited for synchronous communication while others may be addressed in either asynchronous or synchronous environments.

Discussion and Analysis of Task by Group Members in an Open Forum

Most reported that the length of the debate posed the greatest challenge. When the debate had finally ended (after 14 weeks), both groups voted on which group had won the debate. The results were four to four and the debate consultant kept his vote secret to everyone and the debate was ultimately ruled a draw. Following the vote, an hour or more was allotted to debrief the class on how the assigned task of entirely online communication affected students while participating. The discussion was an open forum where everyone revealed their opinions and comments concerning the experience.

Though the debate was considered long, most students found understanding in its purpose. Almost all agreed that the exercise was beneficial and a good lesson in converging debate and online communication methods. Most felt relieved to verbally express their experiences openly in the forum and recognized that if other synchronous methods were used, such as telephones, the debate could have used less time and materials would probably have been submitted on time. Most students reported that the debate was effective but inefficient, due to the removal of particular communication modes.

Recommendations

One of the objectives of the course was to intentionally expose students to the challenges associated with merging traditional learning strategies with newer technologies. The debate exercise was considered by most students, though some may have felt mentally exhausted at its conclusion, an excellent exercise in the necessity to adapt learning strategies for selected technologies. However, selecting technologies does not forgive the necessity for thoughtful instructional design strategies. Throughout the process, the students experienced many frustrations and made numerous adjustments. The exercise also provided a real-world perspective into considering the design and technology as a hybrid of traditional strategy and newer technology. If the strategy and technology were considered and merged into a format so all of the afore-mentioned issues were considered prior to implementing such a design, a debate could be a quite useful learning mechanism for instruction.

Analyzing Resources

Traditional instructional design models are useful in helping instructors adapt traditional methods to new instructional environments. A critical component of the instruction design model lies in analyzing the resources, e.g. the technologies. High-tech resources such as the internet allow for a number of different avenues to be explored. A major consideration in developing a strategy for online instructional design is to first understand the manner in which individuals or groups will communicate over time. One should consider if communications occur in an asynchronous, synchronous, or combination environment. Further, one should analyze what resources work well in asynchronous and synchronous environments.

Media attributes, such as bandwidth, interactivity, interface, and access, can help instructional designers understand the strengths and weaknesses of designing in a particular online environment. For example, if a group of students plan to attend an online course from the workplace equipped with a high-speed local area network and use of videoconferencing equipment, perhaps a two-way video conference would maximize learning. This addresses bandwidth (high), interactivity (high), interface (one mechanism), and access (group attending in one place accessing class through a local area network). However, this same scenario could be complicated if other students, say from a rural area, have access to only dial-up (low speed) internet connections.

Choosing the correct technology can be difficult. More and more universities and colleges are investing in devices that are intended to facilitate communication and interaction, store data for instant retrieval, and provide access for all users. This means that more and more options for delivering instruction in the classroom and across networks exist in environments that have yet to even catch up with yesterday's technology. Further, the current trend in resource investment seems to be moving toward higher bandwidth and higher interactivity. This poses a great challenge, because there is no particular standard for choosing the best technology and the best strategy. More importantly, not all students possess compatible machinery or software to interface with higher-tech equipment. Therefore, the choice must be made by the instructional designer as to what methods will maximize learning for particular students or groups. Hakkinen (2003) states that "it is not enough just to provide a forum for students to collaborate, but their constructions of shared understanding and meanings have to be supported."

Design Considerations for Online Debate

In the case of an online debate, time/place independence will play a role in the usability of technology in relation to desired outcomes associated with debate structure. Additionally, one

must consider the reliability and ease of use of a particular technology. Therefore, brief online debates might become more productive if the debate parameters include synchronous (rather than asynchronous) communication methods that are simple to use. This might include chat, instant messages, audio conferencing, and video conferencing. However, as the complexity of the technology increases, so do the demands associated with the user. For a simple debate, instructors might use a chat session in order to maintain synchronous communication while adhering to formal rules. The instructor should moderate the discussions according to time constraints, processes, evidence, and other debate principles. More complex technologies, such as audio and video conferencing should involve a technician who maintains the network connection and communication devices while the instructor moderates. The point is to communicate in real-time so the debate does not last longer than necessary.

On the other hand, asynchronous methods may also work. Tu and Corry (2003) state that “simply requiring students to post messages to address the instructor’s questions may not result in effective learning” and suggest implementing an online collaborative learning community consisting of 1) online learning, 2) collaborative learning, and 3) online community. As mentioned earlier, both groups discovered that a circulating document worked best for a long debate that involved a small group. This allowed individuals to contribute their own thoughts and incorporate their own words into the argument. Because there was an entire week between arguments, students could circulate the document more conveniently. However, by following the traditional format, the debate grew long. Perhaps a different design is necessary to conduct a group asynchronous debate. The designer might suggest the circulating document, but reduce the number of official arguments, including the second rebuttals. Tu and Corry also state that:

asynchronous discussion separated by a week’s duration is beneficial, yet the topic should be engaging and new. Further, the authors pose that “debating has been a structured exercise and, in an online environment, the instructor must provide rigid instruction for step-by-step presentation, debate, and defense.”

Other formats might require adjustments to the design of the debate. For example, if the debate occurs on a message board, individual rather than group arguments might be more efficient. Again, the instructor might adjust or limit the number of rebuttals and redirects, yielding to timely arguments. Lastly, the instructor may limit the words used in each phase of the argument to the number of words one might use in a timed face-to-face debate session. However, as students prepare for a debate in an asynchronous environment, the accumulation of messages in discussions between group members may become overwhelming and because of time lapses, some information exchange may be taken out of context (Hron and Fredrich 2003).

Conclusion

The lessons learned were two-fold. First, students understood the complexities of exclusive electronic and online communications in a group context. Secondly, and perhaps more importantly, students discovered that traditional methods of debate are complicated when the constructs are originally designed for a completely separate communication method. The online debate was effective because it produced spirited and valid arguments, but inefficient in its use of time. This aspect can certainly translate into the academic and instructional design of distance learning and online course design. As instructional designers develop online courses, they must understand the complexities of online environments when incorporating traditional instruction. Instructional designers should consider the attributes of technology and media in the context of synchronous and asynchronous environments. Further scientific investigation is needed to explain the main effects of the strengths and weaknesses of online debates. Perhaps this case provides a basis for further study.

References

- Clark, Richard E. (1994). Media Will Never Influence Learning. Educational Technology Research and Development. Vol. 42, Number 2.
- Hakkinen, P. (2003). Collaborative Learning in Networked Environments: interaction through shared workspaces and communication tools. Journal of Education for Teaching, Vol. 29, No. 3, pp. 279-282.
- Hron, A. & Fredrich, H. F. (2003). A review of web-based collaborative learning: factors beyond technology. Journal of Computer Assisted Learning, Number 19, pp. 70-79.
- Kozma, Robert A. (1994). Will Media Influence Learning? Reframing the Debate. Educational Technology Research and Development. Vol. 42, Number 2.
- Tu, Chih-Hsiung & Corry, Michael, (2003). Designs, Management Tactics, and Strategies in Asynchronous Learning Discussions. The Quarterly Review of Distance Education, Vol. 4(3), pp. 303-315.

About the Author



Shawn M. Love

Shawn M. Love is a doctoral student in Adult and Higher Education at the University of Oklahoma.

He holds a Bachelor of Arts in Organizational Communication and a Masters in Human Relations, emphasizing Human Resource Development.

His current research involves online collaboration and use of video in online education environments. Shawn is the president of SML Group, Inc., an Education Technology consulting company. At The University of Oklahoma, he has served as an adjunct professor of Freshman Programs and developed distance education courses in the College of Engineering. He is currently assisting Oklahoma City University's Meinders School of Business with the implementation of an online Continuing Professional Education program.

Shawn M. Love can be contacted at shawnlove@ou.edu.

Editor's Note: Brent continues to share ideas for continuous improvement in student performance. Writing is important to success in academia and in the world beyond. The best jobs require "excellent communication skills" and "excellent writing skills." For some it is a gift, but for others it is a discipline. The real joy in writing comes when we master the mechanics so that our mind connects to the receiver with no thought of the technology involved, like a master musician. At this point, information is enriched with imagination and our enthusiasm creates a bond with the reader.

Writing Advice for Today's Online University Students

Brent Muirhead

Introduction

Contemporary online university students often express concerns about handling written assignments for their classes. This discussion is designed to assist students in developing effective writing strategies and practices that will enable them to create quality papers.

The Challenges of Writing

A key starting point is identifying the purpose of the assignment. That will shape the entire writing process. Students should clearly understand their instructor's directions and expectations. If the individual is confused whether it is a formal or informal paper, it is vital to contact the instructor to clarify their questions or concerns. Students must be proactive and learn to cultivate a positive attitude toward their written work. Writing can be an intimidating task for those who lack confidence in their skills. Often online classes require numerous papers, and this magnifies feelings of anxiety. Some students become frustrated when they struggle to put their thoughts into words. Hancock (2003) urges individuals to

"close your eyes, visualize a specific, living, breathing reader, and say to yourself, 'What am I really trying to say?' Whatever the answer, write it down. Polish it later if it's needed --- but you may be surprised at how trivial the polishing can be" (p. 5).

Be proactive in facing the challenges of writing. Become sensitive to issues that affect you and have a negative impact on written work. Over the years, students have shared seven major reasons for struggling with term papers:

Procrastination - often the greatest battle is getting started and students develop the habit of putting off doing an assignment until last minute and struggle to meet deadlines.

Perfectionism - students who set unrealistic academic standards for themselves and are constantly revising their papers. It can be an emotionally draining practice that often undermines the development of effective writing skills.

Indecision - students find identifying a specific topic illusive and they waste time by continually switching between different ideas without any definite closure.

Stress/Anxiety - when students are tense, it can shut down the entire writing process. Anxious feelings increase as the due date approaches and little or no progress is made.

Job/Personal Problems - emotionally challenging work and home situations make writing more difficult because of preoccupation with too many problems.

Negative Comments - excessively negative remarks by instructors or associates can create emotional or psychological barriers that undermine confidence.

Term Paper Syndrome - absence of personal autonomy in selecting relevant topics create a mind set against having to crank out papers to meet course requirements (Muirhead, 2004).

The list reveals the importance of understanding and addressing challenges that adversely influence on the writing process. Students share horror stories of college term papers that were heavily criticized and how this eroded their confidence. To affirm positive aspects of their work was a lost opportunity.

Journal Writing

Professional writers encourage people to start a personal journal to foster a positive attitude toward writing and empower them to freely express their ideas. Reflective journals are an excellent way to improve writing skills. Today, a growing number of people create electronic journals as an effective way to recall ideas and organize information. Educators use journal writing exercises in their classes because it offers a diversity of relevant learning opportunities. Students investigate knowledge in a less structured format while cultivating their writing skills. Instructors who take the time to carefully read student journals glean valuable insights into their sources of motivation and academic needs.

Journal writing assignments can be designed to address course learning objectives. The University of Phoenix has its online doctoral students integrate journal writing in their Doctor of Management degree program. Students use their journals to meet a variety of learning needs such as reflecting on research studies that are important to their dissertation projects. Students and teachers use journal writing activities in a variety of academic disciplines as a creative way to enrich educational experiences. Muirhead (2004) shares seven major advantages to journal writing:

1. **Provides an aid to memory** - researchers and writers have learned the value of recording their ideas for future use.
2. **Provide a basis for creating new perspectives** - it creates a framework to explore ideas and identify contemporary intellectual trends.
3. **Enhances critical thinking skills** - creates opportunities to refine thinking skills by analyzing the underlying assumptions of personal ideas and beliefs.
4. **Provides psychological/emotional advantages** - it enables individuals to work through difficult work and personal situations and promote healing and growth.
5. **Offers opportunities to increase empathy for others** - individuals address social issues and enhance their understanding of individuals and groups.
6. **Provides a practical way to understand books/articles** - writing creates a framework to regularly examine reading materials and improve skills related to comprehending, understanding and recalling knowledge.
7. **Provides support for self-directed learning activities** - journal writing requires personal discipline which is a vital ingredient in becoming a life-long learner.

The Art of Effective Writing

A writing plan is a vital step towards improving writing skills. The plan should emphasize realistic strategies that foster constant improvement and help to create quality papers. Veteran writers recommend establishing a writing plan based on assignment due dates. A good writing plan will involve calculating the approximate amount of time needed to effectively complete the paper. It will take personal discipline to consistently work on the paper. A writing schedule will reduce stress by integrating enough time into the individual's daily routine to research, outline, write, and edit the paper in time to meet the deadline for the assignment. A writing plan will help procrastinators to get started earlier and perfectionists to allow more time for revisions. The time line must allow sufficient time to complete each phase of the research and writing experience. A time line should have built-in flexibility to insure that adequate time is allocated for each phase of the writing process (Sawers, 2000).

Students at the University of Phoenix (UOP) can electronically submit papers for review by The Center for Writing Excellence. The Tutor Review service provides feedback on the first four or five pages of the student's paper in grammar, word usage and organizational issues. Students normally receive their Tutor Review feedback within 48 hours but in busy periods feedback may take 4 or 5 days. The Tutor Review program is popular with students for its relevant and specific remarks. UOP plans to implement The WritePointsm Automated Review system in the near future. It will offer detailed feedback to students within minutes.

Student writers must take personal ownership of their learning and develop a writing plan based upon sound writing principles and aligned with their personal and professional goals. Mattenson (2004) is a university teacher who encourages students to recognize their writing habits, "my standards are with you for 10 weeks, 'I tell my students,' but yours are with you for the rest of your life" (p. B11).

During my second doctoral program, I made journal publication of articles a primary career goal. I made arrangements with the university administrators not to receive letter grades for my papers and course work. Instead, I focused my energies into producing quality term papers and I was able to translate my doctoral materials into numerous journal publications.

The planning process is an essential step towards improving written work. It involves selecting an appropriate topic, designing a thesis statement, conducting preliminary research to make sure there is adequate information on topic, and developing a basic outline of the paper. Students who rush into their writing project and skip these steps take a risk that could cost them precious time. The preparation phase is essential to lay a solid foundation for the actual writing process. It helps students to achieve a focused paper with appropriate information sources to support their ideas.

Students should strive for precision and impact in their papers. I remind my students that contemporary readers are opposed to any form of media that appears to waste their time. People will often skip over journal or magazine articles that lack conciseness and visual appeal. Contemporary Americans are well known for surfing through an assortment of television or radio programs and web sites. Therefore, writers must evaluate their use of language whether it has the dynamic quality that captures the reader's attention or verbiage that might repel potential readers. Brohaugh (2002) describes flabby writing as "any that slows the reader down - anything that physically slows the sweep of the eyes across the words, that stands physically in the way of the reader's mind absorbing the meaning of the words as quickly as possible" (p. 2).

Students who tend to be verbose will write an excessive amount of words. Extra words produce confusion in the mind of the reader. Redundancy is one type of wordiness and it can appear in several forms: three illustrations to support a single point, constantly repeating a major point, or excessive repetition of a single word like "perspective." It is misuse to cluster redundant words

for emphasis and lose clarity. Brohaugh (2002) relates that “pesky tautologies simply clutter things up saying ‘mental telepathy’ when ‘telepathy’ is enough or saying ‘past achievement’ when ‘achievement’ itself communicates that it happened in the past” (p. 17).

Student writers can enhance their writing skills by following a basic writing plan that helps them to effectively edit their work. Hostetler (2004, pp. 24-26) offers ten practical steps to polish their papers to which I have appended with explanatory comments:

1. **Ask who cares** - focus on relevant knowledge that interest readers
2. **Edit for weaknesses** - enlist individuals who can provide constructive advice
3. **Use computer tools** - use spelling and grammar software
4. **Proofread your work later** - wait three days to edit to keep a fresh perspective
5. **Delete unnecessary words** - aim to create clear sentences
6. **Highlight all verbs** - select verbs to change from passive to active
7. **Highlight adjectives and adverbs** - delete redundant adjectives and verbs
8. **Eliminate clichés** - avoid using terms such as downsizing
9. **Sprinkle in variety** - vary sentence length, mix simple and complex sentences
10. **Read aloud** - identify sentences to changes such as location of verbs

Conclusion

Writing papers can be a positive educational experience for online students who take the time to design and successfully implement a strategic writing plan. Students can become better writers through consistent self-evaluation of their work and application of relevant instructor suggestions. Students are more excited and motivated to write when they learn how to effectively share their passion and expertise with others.

“Whatever Wells writes is not only alive, but kicking.”

Henry James referring to H.G. Wells

References

- Brohaugh, W. (2002). Write tight: How to keep your prose sharp, focused and concise. Wilmington, DE: ISI Books.
- Hancock, E. (2003). Ideas into words: Mastering the craft of science writing. Baltimore, MD: The John Hopkins University Press.
- Hostetler, B. (2004, September). 10 simple exercises to improve your craft. Writers Digest guides presents start writing now: Your introduction to the writing life, 24-26.
- Mattenson, L. M. (2004). Teaching student writers to be warriors. The Chronicle of Higher Education. 1 (48), B10-B11.
- Muirhead, B. (2004). Facing the challenges of writing (class handout). Phoenix, AZ: University of Phoenix.
- Sawers, N. (2000). Ten steps to help you write better essays & term papers. Edmonton, Canada: The NS Group.

About the Author



Brent Muirhead has a BA in social work, master's degrees in religious education, history, administration and e-learning and doctoral degrees in Education (D.Min. and Ph.D.).

Dr. Muirhead is the Lead Faculty and Area Chair for GBAM Business Communications in the graduate department at the University of Phoenix campus in Atlanta, Georgia. He teaches a diversity of undergraduate and graduate level courses in Atlanta and online. He is an Associate Editor for Educational Technology and Society and he has worked as a visiting research fellow to Robert Gordon University, Aberdeen, Scotland. He may be reached via email: bmuirhead@email.uophx.edu.