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ABSTRACT

The new e-learning technologies offer the rich promise and potential of learning delivery at any time, anywhere, on any topic. Without careful management of the learning process, application of best principles and practices in e-learning design strategies, effective attention to staff development, provision of extensive learner support services, and careful focus on a range of socio-educational issues, the promise may lead to a widening gap in access between rich and poor, young and old, employed and unemployed, and computer literate and illiterate persons. Access to e-learning may actually be made more difficult by the wider use of technology claimed to be able to improve it. Some aspects of this access-related agenda worth considering further are awareness, situation/location, user cost and perceptions, e-learning design strategies, and personal competence and skilling. Other access issues are: an organization's level of readiness for e-learning; faculty participation; convenience of access as an important factor influencing learner satisfaction with the system; and the extent of congruity/compatibility among adults' learning styles and e-learning. (Contains 39 references.) (YLB)

E-Learning and Access: Some Issues and Implications

Máirtín Ó Fathaigh

E-Learning and Access: Some Issues and Implications

This presentation today sets out to examine access issues associated with e-learning. E-Learning is a very broad continuum of synchronous and asynchronous processes, which include computer-mediated learning, distributed learning networks, web-based learning, technology-aided learning, on-line learning and asynchronous learning networks. We must delineate a vision and e-learning design strategy outlining the training and development systems we want: the principles, practices, influences, opportunities, research issues, partnerships, roles and paradigms. These constitute vital aspects of the e-learning continuum, from synchronous learning on one side, with real time/place communication to asynchronous networks of any-time, any-place, any-topic potential, and time-delayed, communicative interactions such as computer "chat-rooms". This cognitive map should direct the focus of e-learning developments of the future.

Broadly speaking, 'access', includes socio-personal and equity issues: the engagement of teaching staff/faculty with the new e-learning milieu: and the embedding of e-learning which is receptive and available to different learning cohorts. This vision constitutes a very basic issue for this conference; what technology can do ---- may not be what we want it to do. The different options/ scenarios demand sustained reflection and consideration. As well as questions of access and equity, our purpose in using technology is to make teaching and learning, training and development more effective and more efficient. This may require radical alterations to the way we structure and organise our systems/institutions. I do not believe that technology will replace human teachers/trainers. Technology, used as an important tool by trainers and learners within a wider, articulated system of training and development, offers enormous promise and potential. As reflective practitioners we must be aware of, and seek to avoid, the development of a digital divide and a two-tier system, whether in business, education and training organisations, community settings, or individual learning careers.

The new e-learning technologies, certainly offer us the rich promise and potential of learning delivery at any time, anywhere, on any topic; international courses, fully inter-cultural, with learners - teachers drawn from all over the world: A truly global network/system of learning. It may promise greater learning effectiveness, more learner-centred approaches, just-in-time learning, higher degrees of inter-activity and a different, perhaps better, range of teacher-learner, learner-learner interactions (Daniels, 1999). But this rich and engaging promise does not (may not) automatically, lead to effective lifelong e-learning, nor indeed does it guarantee that e-learning ICT technology will always be used in these ways. Without careful management of the learning process, the application of best principles and practices in e-learning design strategies, effective attention to staff development, the provision of extensive learner support services, and a careful focus on a range of socio-educational issues, the promise may/will lead to a widening gap in access between rich and poor, young and old, employed and unemployed and computer literate and illiterate persons. As one writer notes, it may lead to "a form of cultural imperialism, the 'Americanisation' of the curriculum, and the

future homogenisation of learning" (Bates, 1997). It could threaten public education systems, operated on the "pro bono publico" principle, to be replaced by profit-driven, powerful multi-national commercial corporations.

The power, promise, and potential of this learning revolution must be guided and directed so that, as one writer cautions, "we are not over-run by a juggernaut of technological determinism". Here it is worth recalling the analogy of the two wheels of a bicycle. The rear wheel (technology) provides the power and the drive whilst the front wheel gives direction and control. Power without direction may be valueless and the I.I.T.D. has a major role in the reflective practice, policy initiatives and prioritization of resources in relation to the role of e-learning in training and development. A coherent e-learning design strategy must reconcile competing educational values, ideologies and approaches. We cannot/must not apologise for being robust reflective practitioners.

Sir John Daniels of the Open University, distinguishes between "hard technologies" of bits and bytes, electrons and pixels, satellites and search engines and "soft technologies" of reflective processes, principles, approaches, methods, sets of guidelines and rules, and models of organisation. Daniels captured the startling pace of change and the need to be guided by thought and professional reflection when he asserted that:

> *"we must concentrate on getting the soft technologies right. The hard technologies change. Indeed, they change quite rapidly. Some years ago video-conferencing was all the rage. Now to hear some people talk, you would think the Web is the only learning medium that exists. In a few years the pattern of technologies available and fashions in media use will have changed again. To cope with these changes you need a sound framework of soft technologies to ensure you employ the hard technologies effectively. These soft technologies are simply the working principles and practices that underpin the rest of today's modern industrial and service economy: teamwork, division of labour, specialisation, quality service, project management, creative thinking and problem solving.... if we get the soft technologies right the hard technologies will take care of themselves."*
>
> (Daniels, 1999)

Interestingly, in the most recent edition of the C.I.P.D.'s **People Management** it is claimed, that e-learning has excellent potential in leadership training:

> *"as long as the technology builds on the established principles of adult learning: learn by doing; learn from others; learn ideas that are relevant and practical; learn from experimentation and reflection; and learn over time, not in one event".*
>
> (Ulrich and Hinkson, 2001, p.35)

In our own magazine, **Arena**, John Butler demolishes a number of popular myths relating to e-learning and shows the value of this learning where it is integrated, in a thoughtful manner, into organisations. He asserts that

> *"our goal is to integrate the potential of people, knowledge management and learning to leverage sustainable strategic advantage for client companies"*
>
> (Butler, 2001, p.15)

'Access' may refer to the ability/inability of persons, to avail of, and participate in, a widely available service. The notion of 'universality' has had an important and enduring influence in public sector education.

Education/learning/training are increasingly being viewed as vibrant sectors of the information economy and traded information forms a dramatically rising proportion of the knowledge economy. This is largely driven by the expansion of electronic communications, as expansion in manufacturing was by the steam engine in an earlier era. NIACE (1997), (The National Organisation for Adult Learning), points out that world wide, governments are altering media and telecommunications regulations to allow this information economy to develop according to laissez-faire type principles. A major topic of interest in the U.S., for example has been the extent to which universality of provision and participation is being abandoned in the quest to conquer Cyber Space (Web-based Education Commission, 2000). The future, free and open, "user pays" information economy may ensure that the concept of 'access', predicated on universal service and participation, is diminished.

Helen Lentell, of the National Extension College recently commented that the "cherry picking by large corporate raiders and niche entrepreneurs potentially threatens both on-campus and distance education not-for-profit activities" (Lentell, 2000, p.37). Interestingly, Dr. Michael Zastrocky, of the Gartner Group in March 2000 commented that "the death of open education is here. It does not matter whether you are close by or on the other side of the world. Your competitors are cherry-picking easy-to-deliver, high-demand and lower-cost courses" (Zastrocky, 2000). U.S. experiences suggest that access to e-learning may be more sharply differentiated and unevenly distributed than access to conventional learning provision. In a society with relatively high levels of pre-existing functional illiteracy (such as Ireland) factors such as: negative experiences of education, under developed aptitudes, non-availability of opportunity; feelings of exclusion; low income and socio-economic status may be exacerbated and overlaid by new technology-based factors.

Ironically, in an age of e-learning, the first barrier to access to e-learning identified by a prestigious bipartisan Congressional web-based educational Commission in the U.S., was technology itself. This Commission set out to discover how to overcome barriers to participation in e-learning. The Commission claimed, **inter alia**, that

> *"we must immediately put to rest the notion that full development of web-based technology for education is a choice. The internet is revolutionizing all parts of society, but its impact in education is just beginning to be understood. We believe that a national mobilisation is necessary to ensure that the tremendous potential of this new technology is harnessed to benefit all learners wherever they may be".*
> (Web-based Education Commission, 2000)

It was claimed that, in order to extend access and use to e-learning, that technology must be convenient and affordable, available whenever/wherever such is needed either in an adult literacy classroom, library, community centre, workplace or in the home, and that once an e-learner had established a connection and had become skilled enough to use it, then he/she should find content and applications that have meaning and value for diverse learning needs.

Increasing disenchantment with some "grandise claims" for the value of computers in education has emerged among educationalist/researchers in recent years (Healy, 2000). Interestingly, some years ago Sir David Puttnam, in a similarly veined commentary stated, in rather acerbic terms, that

> *"multi-national media companies are creating education programmes which leap frog over schools and appeal directly to children and their parents. One senior executive has predicted that educators may be paid more than film stars in the years to come. However, this international* ***'edutainment'*** *material is driven by commercial values and we risk losing out to a tidal wave or relatively low quality and certainly low cost materials with just enough educational content to make it attractive to parents".*

Dr. Anthony Bates questions whether there is an alternative to Japanese and American-originated "low quality edutainment?". He questions whether this is the "educational equivalent of cheap textiles and cars?" and argues that a different future, clear vision and a determined/coordinated policy approach is necessary (Bates, 1996). The irony of these arguments is that, with certain exceptions, access to e-learning may actually be made more difficult by the wider use of technology claimed to be able to improve it.

This contention cannot and should not, however, be used as a reason for avoiding the integration of the new technology into training and development because teachers/trainers/learners, not part of this learning revolution, will become increasingly marginalised and excluded from an information economy whose wealth generation, intellectual as well as material, will grow more dependent on it year by year. Some aspects of this access related agenda are worth considering further:

- **Awareness**

  Are users and providers are sufficiently aware of the technology and resources surrounding it to make effective use of it and ensure widespread availability at an affordable cost? Equity of access and commitment to facilitate participation by disadvantaged groups are part of this broader access agenda (Yeomans, 1996).

- **Situation/Location**

  Perhaps the greatest claim made in favor of e-learning is the ability to collapse space and time making learning resources readily available in diverse settings. Does this apply to geographically remote areas, and urban areas with low levels of spending and/or low credit ratings?

- **User Cost and Perceptions**

  The rapid obsolesce of computer hardware and software, the major capital cost of buying hardware and software remain major barriers to access. Student support services are vital issues in the context of user cost.

- **E-Learning Design Strategies**

  The professional contribution of organisations such as our Institute is to be seem directly in regard to criteria which inform the rationale, learning objectives, methodologies, content and evaluation procedures pertaining to the process of learning including:

⇒ the socio-cognitive and affective aspects of learning;
⇒ the extent to which negotiated learning, ab initio, features in content design and development;
⇒ the importance of peer-support networks in encouraging/affirming a self-fulfilling prophecy of success in learning;
⇒ the promotion of cooperative and collaborative climates of learning;
⇒ the reduction of levels of low self-esteem and confidence in learning;
⇒ the lowering of the high levels of attrition and fall-out rates from e-learning programme, up to 70% in evidence from the U.S.;
⇒ the evaluation process of e-learning, personal competencies, skills, knowledge bases etc.

- **Personal Competence and Skilling**

  Computer illiterate persons may be barred not only from the rapidly increasing volume of rich educational material available electronically, but may also be prevented from taking part in formal courses which feature such materials. Competence may be affected by cultural, personal and socio-demographic factors including: age, attitude to learning, 'learning styles', gender, language and ethnicity etc. The salience of this point is asserted by one writer who claims that "the technology is beginning to be seen as a cultural form dominated by the English language, literate (as opposite to oral) codes, and male oriented applications. It will need to be adapted to the needs of current non-and low user groups to spread effectively beyond these cultural confines".

  (Yeomans, 1996, p.23)

The U.S. Web-based Education Commission (2000) deemed that "issues of access constituted the linch pin connecting all other issues raised in the report". Without broad access

- there may be little demand for the innovative content and creative applications that will introduce new teaching techniques and assessment models
- teachers/trainers may not benefit from the just - in - time training and support e-learning has made possible in a range of other professions and business settings.

Universities, Institutes of Technology and other third level Institutions may not have the links that move research into practice and practice into research. The promise of widely available, high quality, highly accessed and broadly used e-learning opportunities may be made possible by technological and communication trends. These include:

- **More pervasive computing and wireless solutions may enable underdeveloped and remote areas to quickly take advantage of e-learning opportunities;**
- **The establishment/implementation of high quality standards for content development and learning design strategies.** The I.I.T.D. will have a vital professional role to play in this area in the years ahead;
- **A projected significant drop in the unit cost of broad band and an increase in power;** may ensure "that ubiquitous internet access can become a viable option for all, rather than a privileged few" (Web-based Education Committee, 2000).

Let us examine Irish public attitudes, perceptions and uses of technology. The Information Society of Ireland has played a very important role over the past years in focusing attention on the benefits of e-learning. The importance of access issues was reflected in the 1998 Research Report **Ireland as an Information Society ... what the Public is saying.** This research project examined, inter alia,

- Familiarity with technology/communication services

- Access to and usage of the Internet
- Satisfaction with the Internet
- Attitudes to the Impact of Technology on People's Lives

and produced results which were on one hand, heartening, in that

> *"there had been a significant growth in attitudes towards the Information Society among the general public .... Particular optimism has been expressed with regard to the impact of information and communication technology on jobs, education and social inclusion. This level of optimism is especially high amongst the younger generation."*
>
> (I.S.I., 1998, p.1)

Familiarity with the language of the Information Society had improved significantly and a direct link was emerging between increase in familiarity with information and communication technology such as: The Internet, Email, Worldwide Web, Modems and use of these media. "Where access to technology existed, usage inevitably followed". A broad, set of positive attitudes to e-learning was reflected in various data sets.

However, sharp disparities and substantial imbalances in relation to attitudes, technology use, ICT training, and satisfaction with the internet may distort access to, participation in, and use of e-learning. A definite age gap was evident with 68% of respondents feeling that the full impact of ICT will only be felt by the next generation. This indicated that a fairly strongly tendency existed amongst older age groups to take refuge in the rather forlorn hope that this "revolution" would not impact directly on them. Many older persons felt daunted by the onset of digital T.V. and

> *"parents are also very concerned that the fascination with the new technology, and particular the internet, will result in their children becoming obsessed with computer games at the expense of socializing with other children or taking exercise. People are concerned that computers should not become a substitute for normal social interaction".* (p.7)

A sharp contrast in attitudes, perceptions and use was evident between "early adopters" of the new technology and "laggards". Early adopters tended to be concentrated amongst males, the younger age groups, students, the middle class, those working in an office environment in medium/large companies and were most likely to live in Leinster (p.6). In contrast, the most negative perceptions of the Information Society were concentrated amongst the "laggards", predominantly made up of older persons, manual workers, housewives, the farming community and more likely to be living outside of Leinster. These significant age, gender, geographical, occupational and socio-economic differences, in terms of preparedness for the Information Society, and the generational gap in attitudes and use of new technological developments, thought probably not unexpected, may constitute significant barriers to access and participation in e-learning.

The Report claimed that:

> *"the cost of access to the Internet continues to be a barrier to an increase in usage and is a cause of dissatisfaction to those already using the service. Full competition in the tele-communications market place ... should see some easing of the situation but further initiatives need to be taken to make the internet a more attractive medium to the public at large"* (p.12).

Also, I.C.T. training has been largely confined to those employed in a clerical/support capacity and "one third of those occupying a managerial or supervisory role have received no such training" (p.10).

The I.I.T.D., as a partner in the process, must address these dramatic disparities and imbalances and show that e-learning, and the new technologies generally, "have the potential to reduce social disadvantage to ensure that no area of society is left behind" (p.14).

Significantly, seeking to establish whether an organisation is ready for e-learning involves answering a number of key questions pertaining to all levels of the organisation. It is substantially more than merely acquiring the latest content matter featuring the most up-to-date interactive medium presently available and bolting this onto the existing organisational framework. It is a process impacting on all aspects and levels of the organisation. Recently, it was claimed that by 2003, in the U.S. that "half of corporate training is anticipated in the form of e-learning". Organisationally access issues may include the following:

1. **Do we understand the changes e-learning will bring to our organisations?**
2. **Is e-learning part of the organisation's integrated training and development strategy?**
3. **Is there appropriate leadership throughout the organisation to support e-learning?**
4. **Are organisational support systems in place to sustain the adoption of e-learning?**
5. **Is organisational technology capable of delivering e-learning predictably and effectively?**
6. **Are individual learners in the organisation prepared for e-learning?**
7. **Is an overall change management plan/process in place in order to effect a smooth organisational transition to e-learning?**

(Minton, 2000)

Deliberate reflection and sustained planning for implementation will focus organisational efforts, and more effectively deploy resources, thus enhancing individual/organisational acceptance and long-term embedding of e-learning in the organisational culture.

It is believed that certain features of traditional third level institutions, such as universities, may lend themselves to the new e-learning environment (Bates, 1997). For example, a university can be an extremely decentralised organisation, in

that faculty have a high level of autonomy and independence. It has a large and highly creative "core" of staff, who are capable of creating innovative software, developing expert systems, and adapting/inventing new forms of teaching and learning. They have a research capability and knowledge base that enables them to generate new knowledge/approaches in a range of subject areas that can be at the basis of e-learning approaches. Lastly, we must recognise the advantage of a University in e-learning in terms of its 'strong brand image'. These are important in relation to the quality of e-learning, including the quality of the content, learning design strategies, student support services, and the accredited ladder of learning and the formal award/recognition.

Research projects have examined topics such as: e-learning characteristics; design issues; case studies of successful e-learners; and methods/models of learner support services (Wegner and Holloway, 2000). However, limited attention has concentrated on the teaching staff/faculty, full or part-time, who teach/design e-learning programmes and why they participate whilst others do not? Such faculty participation is a significant access issue and is imperative for quality e-learning programmes to succeed. Research (Betts, 1998; Schifter, 1999) showed the significant role changes for faculty in e-learning who may be more comfortable and familiar with traditional methods. Teaching skills in e-learning are different from those required to teach face-to-face. Faculty training programmes tend to focus on how to use the computer and/or software, not on how to teach in e-learning. Research indicates that "intrinsic motivators" such as: interest in exploring new opportunities for student learning; commitment to the intellectual challenge in new approaches; and interest in the use of computers in teaching are more important than the "extrinsic motivators" such as monetary or personal rewards. Inhibitors, blocking access to participation by faculty in e-learning, include lack of technical support provided by institutions; lack of release time for study; lack of grants for materials and equipment; and concern about the quality of courses (Schifter, 1999). I suggest humbly, that similar research be conducted in an Irish context so as to ensure that faculty access to, and participation in, e-learning is promoted and facilitated to the optimum extent. The move to 'cybergogy' will mark a major transition in the professional life roles of many teachers/trainers. Access to support systems, study leave, professional development courses etc. will be vital.

Convenience of access to e-learning has been cited as an important factor influencing learner satisfaction with the system. Whilst e-learning clearly can provide convenient access to educational content how does it measure up in terms of access to the broader range of elements and experiences that go to make up a "complete" educational experience? As an access issue, e-learning opportunities that seek to meet the educational --- rather than merely informational --- needs of e-learners must offer comparable services and opportunities as those available to learners in traditional programmes. Penn State University, World Campus in the U.S.A., a world leader in e-learning, has developed over the past number of

years a range of innovative strategies and approaches in this regard (Thompson and McGrath, 1999). For example, its World Campus integrates the following strategies so as to ensure the "complete educational experience" of e-learners.

- **Appropriate Academic Content**

  Credit courses taken through the World Campus are fully approved by the University Academic Bodies and are not distinguished in any way from traditional resident courses on a student's transcript.

- **Learner Interaction/Engagement with the Course Content**

  The University is committed to active, collaborative, relevant learning and consequently, World Campus (e-learning) students are engaged in a wide range of learning/teaching transactions such as: team projects in critical thinking and problem-solving skills; collaborative assignments; interactive quizes; computer role-playing etc. which seek to increase the depth of student interaction with course content.

- **Interaction between Faculty/Students outside of the "classroom" and with Students in the same Programme**

  A learning community offers more than the transmission of ideas, knowledge bases and information, it also offers a way of establishing connections between people. In the World Campus e-learning approach, audio-conference calls, e-mail interactions, chat-rooms, etc. are used to explore a myriad of different issues regarding course content or other topics of mutual interest.

- **Access to instructional/informational resources and academic advising/other learner support services**

  These features of the programme seek to provide learners with the full range of services available to traditional learners and extend from pre-enrolment guidance and advice, instructional support and tutoring, career services, to full library facilities.

- **A Feeling of belonging to the University Community**

  The University seeks to provide students (traditional and e-learners) with an educational experience that reflects connection to the history, reputation, personnel, and resources of the Institution. For e-learners this feeling of connection is fostered through a variety of different initial and continuing communication channels that seek to promote a sense of identification with the University.

The 'enhancers' of student satisfaction with the World Campus courses include

- removal of geographical barriers to participation;
- mitigation of situational barriers, high quality course content;
- opportunities for career development;
- the name value of Penn State University;
- high degrees of interaction with Faculty;
- use of technology (as an enabler, not an end in itself).

(Thompson and McGrath, 2000, p.7)

This approach to learning, combing pragmatically technology and traditional values/approaches, may serve as a model for future accredited e-learning in the Irish third-level context.

A relatively unresearched access issue is the extent of congruity/compatibility between (Irish) adults' learning styles and e-learning. How do learners in e-learning environments learn when compared with learners in traditional classroom? High non-completion rates are a common feature of on-line courses (Loomis, 2000). It appears that time management

skills and study skills are vital aspects of learner behaviour linked to successful e-learning. My own modest 1997 research on the Social-Interaction Learning Styles of 600 Irish adult learners, revealed a cohort of learners in traditional setting with high dimensions of dependency, participation and collaboration, who placed high value on teacher/tutor support and other students' interactions and cohesion (Ó Fathaigh, 1997). An e-learning access issue relates to the fact that people learn in a variety of diverse ways. The identification of the similarities/differences/relationships between these learning/study/training styles, and the process of e-learning in synchronous/asynchronous environments will be important. Such research may highlight factors causing dissonance in e-learner's motivation and progress.

In a recent research article in the **Journal of Asynchronous Learning Networks** (J.A.L.N.), Hanna (1998) comments that

> *"the combination of access and availability demands, costs, application of content/learning to work settings, new technologies and other factors are radically changing the environment for higher education and these factors are opening the door to emerging competitors and new organisations that will compete directly with traditional universities and with each other, for students and learners".*

His outline of emerging third level organisational models ranges from extended traditional universities, technology-based institutions, corporate universities, university/industry strategic alliances, degree/certificate competency-based universities, to global multinational mega "open" universities. He concludes that "throughout the industrial era, the higher education system has focused upon serving the educational needs of youth to prepare for a lifetime of work and other roles. Today, it is clear that the future will involve a lifetime of learning in order to work" (Hanna, 1998, p.11).

Access to e-learning must take cognisance of at least four converging macro themes in this 'knowledge age'. These include:

- the importance of knowledge in determining personal/societal security, prosperity, and quality of life;
- the global nature of our society;
- the ease with which information and communications technology ---- computers, telecommunications, multi-media etc. ---- enables the rapid exchange of information;
- the degree to which informal collaboration/networking among individuals and institutions are replacing more formal, hallowed social structures such as: corporations, universities and governments.

(Dudderstadt, 1997, p.8)

People and their ideas, in this 'knowledge age', have become strategic commodities essential to our individual/social well being. This "comodification" of learning may cause unease and anxiety in traditional sectors. However, it is important that the many challenges facing higher education in this digital age are faced in a proactive, planned manner. The increasing diversity and range of opportunities/modalities of learning, obvious even in the Ireland of 2001, suggests

that different types of higher education (local, national, global) will serve society in the future. The following themes may/will likely characterise the higher education enterprise in the years ahead (Dudderstadt, 1997, p. 9).

- **Lifelong Learning,** requiring both a willingness/desire to continue to learn on the part of citizens and a commitment to provide wide-based/open opportunities for this lifelong learning by our higher education institutions;
- **A Seamless Web,** in which all levels/forms/types of third level education will, not only become more inter-related, but will blend together to the benefit of the learner thus ensuring a complete quality learner service;
- **Asynchronous** (anytime, anyplace) **learning,** breaking the constraints of time and space to make learning opportunities/modalities more compatible with contemporary lifestyles, needs and opportunities;
- **Affordable,** learning within the resources of all citizens, whether through low cost or societal subsidy thus ensuring broad based access, participation, and use of the e-learning;
- **Interactive and collaborative,** learning programmes and modalities appropriate for the digital age and taken cognisance of an increasing "plug and play" (and learn) generation;
- **Diversity,** sufficient to serve an increasingly diverse population with a wide range of learning needs, goals and roles.

In conclusion, it is important to reiterate that educational principles, in relation to the aims and objectives of learning, methodologies and learning strategies, content materials, and evaluation processes and procedures, must govern the future use and role of e-learning. We must develop appropriate strategies to enhance/promote access to e-learning (Field, 1997, p.39). We must emphasise inclusiveness and ensure that the new technology does not unintentionally condemn such groups as older learners, females, unemployed persons, lower socio-economic classes, unskilled persons and others to further exclusion. We must seek to make 'learning how to learn' in this e-learning age a priority across all forms of training and development so that we all can exploit the learning potential of the new information and communication technologies to the full. We must promote a strategic and inclusive approach to I.T. literacy so as to avoid inter-generational tensions and make e-learning widely available in a wide range of different locations. We must conduct research which monitors and evaluates the use/types/benefits of e-learning within a broad range of training and development environments. Professor John Field of the Department of Continuing Education, Warwick University provides an appropriate closure for this presentation when he comments that:

> *"ultimately, an inclusive learning society will depend on a range of different measures. In their absence, market distortions will damage the ability of key groups of adults to participate and will downgrade the quality of learning for many others. Technologies themselves will not bring about the required desirable changes; we need to understand and respond to the ways that they are used in real social settings such as the workplace and the home"*
>
> (Field, 1997, p. 40)

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