

eLearning: A Learning Context in Context

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Abstract

In recent years, eLearning has received much publicity, discussion and critique. In this paper we aim to step back from this and review the contexts and purposes of eLearning. In so doing we discuss the roles and goals of education; particularly education to meet the often expressed needs to develop skills for lifelong learning and for active participation in the workplace and society. We take the view that, insofar as learning for these purposes is concerned, eLearning is not the purpose. Rather the focuses should be on context, purpose, and usability.

Learning can have a number of goals and ambitions, for example to develop lifelong learning skills and strategies and to realize people's ambitions in life and work and self-fulfillment. These accord with the goals of formal education – although, at the macro-societal level, these goals may be sidelined in the twin quests of creating 'good citizens' and socializing individuals into a society.

We begin by setting out the contexts at each of the conventional stages of formalized learning: nursery, primary, secondary and tertiary education. We explore the contexts for learning and, especially eLearning and discuss how learners' needs change over time. Finally, we discuss how eLearning plays a key role in integrating learning and life and learning for life.

eLearning: Contexts and Purposes

In recent years, the potential benefits of eLearning have become increasingly clear. eLearning is now widely used in organizations to develop workers' knowledge, skills, and competencies (Baldwin-Evans, 2004). Technology enables educators and learners to extend their teaching and learning horizons beyond the confines of classroom and library walls and access the wider world of knowledge (see, for example, Sridhar, 2005). Reported

empirical data suggest that eLearning is used as a developmental tool in organizations in both the private and public sectors and in hybrid organizations, such as corporate universities (Ivergard and Hunt, 2004; Macpherson et al, 2005). In these situations it is possible to provide learners with a specific learning curriculum focused on their precise learning needs. eLearning can engage a social factor to help prevent a learner's feelings of isolation and loneliness (Frankola, 2001).

While the benefits of eLearning are not in dispute, there are a number of impediments to successful use by learners. Impediments to eLearning can be attributed to the learning environment; for example, a lack of support from others in the environment such as the workplace or the home. eLearning can take place in environments that are not designated or recognized) as a space for learning which may lead people to believe they can interrupt the learner in the process of learning. Impediments may relate to the learners themselves. For example, some learners lack the necessary intrinsic motivation or self-discipline to conduct or complete the learning course. This may particularly apply when others (such as parents or employers) choose the eLearning course. A further impediment may stem from the technology. If learners are unused to the learning technology they will be unable to gain optimum learning benefit from it (see, for example, Perreault et al, 2002). Alternatively, the technology may be less than fit-for-purpose for the learners' needs in terms of usability (see, for example, Hunt et al, 2004).

The situational context of learning raises a number of important issues which need to be addressed. According to Homan and Macpherson (2005), the issues include: the degree of sophistication of the eLearning programs for the learning purposes; the integration of these programs with the organization; the ability of the programs to

aid learning processes and outcomes at the corporate wide level. The learning purpose (itself related to the learners' needs) guides the choice of the eLearning programs. These programs should be fit-for-purpose in terms of suitability for the learning task and the technological competencies of the learner. In a workplace setting, it is important to integrate the eLearning programs with other aspects of the organization (such as a training strategy). Not to do so is to court failure and risk demotivating the employees (see the discussion in Frankola, 2001; also see Homan and Macpherson 2005).

It is important to bear in mind that eLearning is not an end in itself. Designing eLearning technologies and syllabuses and implementing eLearning tools for the sole purpose of using a nascent technology is the educational equivalent to putting the cart before the horse. This is a novel approach which ignores the purposes of the horse and the cart and the conveyance needs of the driver. Similarly, we should be wary of harnessing learning to technology per se and thereby ignoring purpose and needs. When seeking to solve problems, Einstein once said, "solutions should be simple – but not too simple." Our wide exposure to rapid developments in ICT and computer-based training (CBT) brings a confidence nurtured by over-familiarity. When such technologies are part of our everyday consciousness, we feel they hold no secrets from us. Technological developments tend to have an initial novelty value and can attract widespread attention and comment. The increasingly widespread use of these technologies both in the workplace and the home environments have helped lower the thresholds of perceived difficulty of use.

We suggest that part of the learning process is the ability to see the potential for the technology as a learning tool and also to see how the learning tool can be optimized for the learning purpose(s). This applies to both learner and teacher. In this process,

instrumental tasks (learning to use the technology and understanding its potential for learning) are key initial way stages on the route towards terminal goals. The terminal goals are the goals for the immediate and for the longer term learning (content learning). However it is preferable that, as much as possible, the inherent instrumental tasks are also content learning. Understanding of technology for learning is a life skill of its own. Armed with this competence, learners gain a self-sufficiency for managing and directing their own learning agenda.

The stages of formalized education

Throughout the world formalized education is divided into four recognizable stages. Conventionally, these stages are designated nursery, primary, secondary and tertiary levels of education. Each stage has a number of common features such as setting, process and expected outputs. Conversely, each stage is differentiated from the other stages by a number of key factors such as age of the learners, learning content, learning context, and learning purpose. Table 1 shows some of the key common features of formalized education. In terms of describing learning, we do not find these designations overly helpful. The outcomes of teaching and learning are surely cumulative: earlier learning outcomes (knowledge, skills and competencies) set the foundations for subsequent learning. The quality of the earlier learning decide the strength or weakness of the foundations upon which the subsequent learning is built. For both teaching and learning there is overlap that does not respect linear time. Similarly, the development of competence and ability is more complex than is suggested by linearity. However, to facilitate administration, curriculum, and management of formalized learning for large numbers of people, the processes of teaching and learning tend to be allocated and delivered in particular blocks of activity.

Table 1: Formalized Education: Common Features and Types of Learning

Education Stage	Common Features	Type of Learning*
Nursery	Structured learning; age of the learners; heterogeneity of the learners' abilities; modest levels of discipline.	Learning as play
Primary	Content; variety of learning activity; age of the learners; heterogeneity of the learners' abilities; modest levels of discipline; beginnings of learner independence.	Learning as socialization
Secondary	Levels of content; range of content; standardization of learning activities; age of the learners; greater homogeneity of the learners' abilities; increased levels of discipline; greater levels of learner independence.	Learning as discipline.
Tertiary	High levels of content; wide range of content; standardization of learning activities; homogeneity of the learners' abilities; expectation of self-discipline; much learner independence.	Learning as specialization.

* Of course, there is some overlap

Considering each of these education stages, we note a number of common features (e.g. setting, process and expected outputs). These common features each relate to some extent to societal mores (for example, segregation of the learners by gender, age or ability; some curriculum content). There are also differentiating factors (age of the learners, learning content, learning context, and learning purpose). Each of the differentiating factors relates to the individual learners at a certain life-stage. Three noticeable features emerge from considering formalized education in this way. Firstly, learners needs change over time. Learning (at the earlier stages) is concerned with social learning that prepares people to take their place in society. The learning environments at the primary and nursery stages often aim to represent the outside world. A close match between external world and the classroom world gives an immediate payback for the learning. In most learning careers this may be the last time when this situation occurs. Secondly, learning at the

later stages can build upon earlier learning. This is noticeable in the content of curricula and the existence of learning stages such as beginner, intermediate and advanced. Thirdly, until the later stages of tertiary education, the learning bears, arguably, scant relevance to the learners' 'real' world. Exceptions are technical and vocational education courses which specifically focus content (academic and, often, practice) on preparation for work. In parts of the world where learners leave formal education before reaching a tertiary stage of education, this aspect of learning and personal development is likely to remain unaddressed.

The Roles and Goals of Education

Nowadays, many governments emphasize the need to educate in learners the knowledge and skills for becoming good citizens able to play a part in national development. Ministries of Education (MoEs) publicize mission statements to this effect. Figure 1 lists a sample of such statements from around the world.

7KH 0 LVLRQ RI WKH (GXFDNRQ6 HUYLFH LV VR P RX@WKH XWUHI W KHQDMRQ, E\ PRXOGLQ WKSHRSOZKR Z K@HMLP LQHMKHXWUHI RI WKHQDARQ . 7KH 6 HUYLFH Z LGURYLG HRXUFKLGUHQZ LMK DE D@QFHGDQG Z H@D - URXQGHHGKXFDNRQ, GHYHORS WKHP VR WKHLUX@RVMQWDO, DQG GXUMUHWKHP IQM J RRG FLM HQV FRQVFLRXV RI WKHLUHVSRQVLEL@MHWRI DP LD , VRFH W DQG FRXQM .

(6 L@QDSRUH: KWS://Z Z . P RHJRY . VJ /FRSLDWH /P L@LVRQ V@MMP HQMKVP)

7KH 0 I@LVM , RQ EHKDD RI WKH RYHLOP HQM %H@H , LVFKDUJ HG Z LMK WKHLUHVSRQVLEL@M RI HQVXU@Q W@DW D@H@H HQ@VDUH J LYHQ WKHSSRUM@LW VR DFTXILH WKHNQRZ @GJH , V@L@V DQG D@M@XGH UHTXILHGI RU X@DQG DFWH SDUMFISDMRQLQWKHGHYH@SP HQW WKHQDMRQDQG RUM HLRZ QSHURQD@GHYH@SP HQW . ,Q FDUU L@J RXW@LV V@VN , WKH 0 I@LVM I@SDU@HUKLS Z LMK WKHF@KUFKHV D@GRWKHUR@Q@M@U DUHQFLH DLP V VR HQVXUH WKDMH@H@H LV D@HTXDM VXSSRUM V@M V IRUMKH@H YH@ RI DSSURSUDM@DQG HTX@M@H HGXFDNRQD@VHUYLFHV . (%H@] H: KWS://Z Z . PRHV . JRY . E))

7KH 0 I@LVM RI (GXFDNRQDQG 5 HM@DFK FUDM@V FRQV@D@DQG FRQW L@XRXV FRQGM@RQV DQG D@V@P SV@RQV L@RUGH@M J XDUDQM@H D@DFFH@V VR @H -@R@J @H@L@L@ IRUD@HRS@H@ (V@R@D , ZKLFK Z RX@H@D@H@WKHP VR DFKLHYHQZ V@D@D@LV RI @Y@J . 7KH 0 I@LVM RI (GXFDNRQ D@ 5 HM@DFK L@M@U L@M@V W@D@M@R@D HGXFDNRQD@D@H@V Z LMK FRQ@P SRDU@ GHYH@SP HQM@H@GV . « 7KH V@ V@M RI HGXFDNRQ V@R@X@S EH I@H@ LE@M@R SURYLGH HGXFDNRQ UH@SHF@M@ LG@YLG@D@S@V@XGHV D@ G@L@H@H@F@H@ RI HY@H@ @D@L@H@ ((W@R@D: KWS://Z Z . KP . HH@XV /KP))

7KH 0 LVLRQ W@M@P HQM WKH 0R (LV@ VR SURYIGH U@H@Y@D@G@XFDNRQ VR D@D K@D@L@D@V@D@H@Y@H@V LU@H@SH@L@Y@RI J HQGHU , W@L@H@ U@L@L@R@V , D@G@SR@M@F@D@H@L@D@W@L@R@V . 7KLV W@M@P HQM@ED@V@H@R@Q WKH@K@P D@ GHYH@R@SPHQ@R@D@V@RI WKH@RYH@L@P HQW V @@J -W@P GHYH@R@SP HQ@D@I@RU K@D@ , N@RZ Q@V@L@R@Q .

(KWS://Z Z . JKD@D . HGXJK /KRP H)

7KH SX@SRV@RI WKH@L@M@K@R@X@P ELD6 FKR@V@ V@M@P LV@R@H@D@H@ @H@L@H@V@R@GHYH@R@S WKHLU@GL@Y@L@X@D@ SRW@D@M@D@G@ VR DFTXILH@H@N@RZ @GJH , V@L@V D@D@M@E@X@M@V @H@H@G@V@R@FR@M@E@X@M@R@ D@K@D@M@ VRFH@W D@G@DSURV@SHUR@V@D@G@V@W@L@D@E@H@FR@R@P \ . (KWS://Z Z . EFH@JRY . EF . FD@H@L@V@D@L@R@Q)

Figure 1: Education Mission Statements From Around the World

Such mission statements show a number of common features. Firstly, there is a socializing goal, for example: preparing people to become members of the state or the nation. In some cases, and at some stages of learning, socializing goals may take priority over other learning goals. Secondly, there is a learning content goal. This goal may be over-arching, for example the learning goal as the development of potential. Or the statement may be more specific, for example, learning for the acquisition of skills and competencies. Thirdly, there may be a statement of equity of opportunity. In certain multi-racial or multi-cultural societies this may be an important statement, especially if the country has experienced episodes of racial tension. In the light of these commendable mission statements, we now explore learning purpose and the roles that eLearning can play in delivering these stated ambitions.

Learning Purpose and eLearning

Interestingly, few Ministry of Education websites contain any express statement that competence in evolving technologies is a goal of education. In current-day societies, where technology competence could divide societies into “haves” and “have nots”, educators are duty-bound to educate the young in technology use as a component of their formalized education. Governments that overlook this aspect of modern education are failing their citizens. There are notable exceptions, such as The Seychelles and New Zealand, where official statements address this issue. In these countries, the MoE mission statements specifically state that “communication technology” and “new technologies” are a feature of the education and learning processes. Figure 2 shows details of the statements from these countries’ Ministry of Education.

(GXFDVRO IRU/HDULOJ 6RFIHW

7KH P LVVRO RI VKHO LQVMA RI (GXFDVRO LV VRE XLOE DFRKHLHQMDOG FRP SUHKHQMYH V\VVWP RI TXDQW HGXFDMRO DOG VDULOLOJUHGHFWLOJ VKDUHG XOLYHMDODOG ODMARODO YDQXV, Z KLFK Z LOE URP RVM VKH LQVMA UDVMG GHYHORSP HQM RI VKHSHU VRO DOG HP SRZ HU KLP /KHUVR SDUMFLSDVM IXOD IQ VRFIDODOG HFRORP IF GHYHORSP HQW

3 ULQFLSOHV
 , O D Z RUOE Z KHUH P DUNHVRUFHV DOG DGYDOFHV IQ FRP P XOLFDMRO VMF KORORJ\ DUH DFFHGHUOMOJ VKHVMHOG VRZ DUGVJ QREDOVDMRODOG VKHLOVMUSHOHMDVRO RI FXOXUHV, ROH RI VKH P DQFKDQHQJ HVIRUHXQJ SHRSQILVVR SDA VKHLUSDUNV G\ODP IF DJ HQW RI FKDOJ H Z KLOP DLOMDLOLOJ VKHHTXLOE UXP Z KLFK FRP HV IURP QHVMH RI LGHOMVM DOG FROMOXLV. (KWS://Z Z Z .YLVMDVMHNRHDOHV.VF/JRYHU/P H.KW)

7R HQVXUHDFKLHYHP HQMHHV/DUH P DLOMDLOHG DOG IP SURYHG Z H QHHG DQ HGXFDMRO V\VVWP Z KLFK
 ? KDV DEURDG YLHZ RI TXDQW DOG UHOHQMDMO. VMVYHV VR LOFUHDV VKH DFKLHYHP HQW DOG QHULOLOJ RI DQDQDQDQV VKURXJ KRXVMHILQYHV
 ? UHFRLQVHV VMH IP SRUODFH RI UDSIG LOFUHDVHV IQ QHZ NORZ QHGJ HQHZ VMFKORORJHV DOG VMH DELOV VR XVH DOG DSSQ VMDVMORZ QHGJ HDOG VMFKORORJ
 ? HOFRP S DMVH JURZ LOJ J QREDOQOXHOFHV
 ? EHVVMUSUHSUHVSHRSQI VR NHH S LOYHVMQJ IQ VMHURZ Q QHULOLOJ DOG SHUVRODO GHYHORSP HQM D VRFHMV VMDVZ LOBKDOJ H DOG EHFHP H P RUH GLYHU H. (KWS://Z Z Z .P LOHGJ RYMDQ/LOGH)

Figure 2: New Technologies in a Ministry of Education Mission Statement

These mission statements contain much detail concerning learning content, social participation, life-long learning skills, advances in technology, and personal development. However, we note that even these finely focused mission statements do not feature any statements relating to ICT and new technologies as a learning tool.

Technology increasingly impacts our daily lives. The ability to use technology facilitates access to education and learning, social services, and various forms of expertise. It is therefore critical for learners to be educated in the use of these technologies.

A central issue and concern for eLearning is learning purpose. Learning has goals and ambitions, for example to develop lifelong learning skills and strategies and to realize ambitions in life and work. Ideally, these goals and ambitions accord with the goals of formal education. This is especially so when many statements are made that the purpose of education is to “develop lifelong learning and learners equipped to play an active role in society and the workplace.” It is another matter that these goals and ambitions (of both learner and education provider) may be sidelined in the interests of creating ‘good citizens’ and socialization

into a society according to perceived governmental needs.

The Importance of Usability

Usability is of paramount importance and, at least in the initial stages of learning, deserves a higher priority of the learners’ investment in time and effort. Usability is the ability to use new and evolving technologies for their intended purposes. In this current context this means for the purposes of learning. By definition, usability encompasses effectiveness, efficiency, and satisfaction. Effectiveness is the ability of the user to carry out the learning task using the technology. In order to make sense of the technology for the learning, the learner needs a certain level of technology competence. Learners whose competence in technology is low will need to expend time and effort learning the technology and its potential for their learning purposes. Without this, the use of the technology as a learning tool will not be fully achieved. Efficiency is a measure of the time needed to carry out the learning task. Optimizing the time needed for the task involves a learner who is aware of the potential of the technology and how to operate the technology to achieve this potential. Satisfaction is a measure of how

satisfied is the user with the technology for its purpose. In essence, this is a combination of effectiveness and efficiency of technology use. (For a fuller discussion see Hunt et al, 2004).

The process of achieving usability has a number of instrumental tasks that are key way stages *en route* towards terminal goals. It is axiomatic that technologies that are used for the purposes of learning need to be suitable for the learners' needs. However, as we have stated above, learners needs change over time. Looking more closely at the four stages of learning (see Table 1) we can suggest ways in which eLearning technologies can aid the learner at different life stages (Table 2).

The ultimate aim at each stage is twofold. Firstly, that the learner is able to control the technology for the required purpose. Secondly, that the learner is aware of the potential of the technology as a tool. For example, at the nursery stage, where we suggest that learning is part of play, the focus of learning can be exploratory of the technology and its potentials in the same way as at this age children are beginning to explore the world around them and its potentials. Part of this exploration involves becoming familiar with the means of controlling the technology in the same manner as children learn to control mechanical and electronic toys and other devices. One key element here is the availability of a tracking facility that monitors progress (i.e. a basic scorecard system).

Table 2: Types of Learning and eLearning Potentials

Education Stage	Type of Learning	eLearning Potentials
Nursery	Learning as play	Using the technology to explore possibilities. Becoming familiar with the basic controls of the technology. Being able to track learning and to use this as a benchmark for further development with the technology. eLearning technology focus. Familiar content from everyday sights and sounds.
Primary	Learning as socialization	Sharing the technology with others. Collaborative learning with the technology as a medium. Competitive elements as a way of individual skills development. eLearning technology as a self-directed tool for the learning. Socialization elements through bringing the outside world into the VDU.
Secondary	Learning as discipline.	Personalizing the technology towards learning outputs (e.g. study). Technology for learning content and relationships between content. Technology use for the individual's specific purposes.
Tertiary	Learning as specialization.	Technology as a learning tool both to deliver specific content and to aid the user in identifying additional (related) content. eLearning technology as both process and product.

In primary education we suggest learning has a socialization dimension. The child at primary education level is, in many parts of the world, familiar with certain

technologies (for example those that may be found around the house and home). As part of the socialization dimension, there are opportunities at both primary and secondary

levels for learners to engage in collaborative learning that emphasizes sharing towards mutually beneficial outcomes. This would be a counterbalance to the competitive elements found in, for example, computer games played by children at this age. There is also opportunity for children to learn to use technology in a self-directed way, for example, to personalize the learning and its outcomes. At the level of secondary education we suggest that learning is beginning to become a matter of discipline. This is particularly so as the child's formal studies take a clearer structure and framework. Against this background the child can continue to develop skills that enable the personalization of the technology to the required learning outcomes.

At the tertiary education stage, we encounter learning as a specialization. For those learners who continue their education to a tertiary stage, technology becomes an invaluable tool both for the delivery of on-line content and as a tool to help identify and locate additional content as needed. eLearning technology is available as both a process of learning and personal development and as a product produced by the learner's expertise with the technology.

Discussion: eLearning and the learner in context

When considering the integration of learning towards delivery of life long learning competencies, it is useful to assume the perspective of the learner using the eLearning technology. As we see from the mission statements of educators (Figure 1) common features of these statements are: socialization of the individual into the social setting, delivery of stipulated learning content (which may relate to socialization), development of individual potential, and (possibly) equity of opportunity. This is education from the perspective of society. From the perspective of the individual eLearning can deliver the societal agenda

and provide the individual with transferable skills that the individual can adapt to throughout their life. The benefits of society and the individual converge in that individuals who are technology-savvy can play a greater role in the development of their societies.

eLearning needs to be sufficiently flexible such that it can be adapted to the styles of individual learners. Each individual learner has their own preferred style of learning (e.g.) and a problem with eLearning today is that this only provides access to one learning style (usually the designers). Designers themselves are often locked into a particular platform for their designs and this, in turn, locks in the eLearning to one style of learning. Indeed, there is evidence to suggest that software designers are somewhat incestuous when evaluating usability and garner feedback from within their own community of practitioners (Mirel and Olsen, 1998). A conclusion here is that one should identify and then emphasize the purpose for the learning and select the supporting technologies best able to deliver to these choices. Thus is the cart and horse ordered in the manner best to deliver benefits. We reiterate our earlier message: technology for its own sake is not the criteria for selecting the technology.

It must be possible for the learner to be more intelligent and to be more innovative than the circumscribed limitations set by the eLearning designer. The designer has created an eLearning context to be used by learners in a certain context, for example process engineering or financial planning. But the user (learner) might see new possibilities for learning in another context, for example bio-engineering or risk management, based on their own needs and experience. It must be possible for the learner to be more intelligent and to be more innovative than the circumscribed limitations set by the eLearning designer. The goal would be for an open-ended flexibility to the

technology rather than a fixed system as created by the designer. An open-ended technology would enable the learner to enter and leave at will and to be able to access needed data on demand from eLearning systems. As the learner adjusts to the available eLearning technology, s/he develops personalized routines and strategies for using the learning and seeing the evolving processes. These strategies can begin with the young learner and be developed as the young learner develops abilities and competencies which s/he carries forward into more mature learning. This cumulative development of learning expertise lead to much higher levels of competency.

eLearning systems should integrate search engines related to certain forms of knowledge and knowledge management systems. For example, google.com searches widely and broadly while googlescholar.com searches specifically and with a focus. In the former the user selects from pages and pages of information. In the latter the user is presented with pages of information pre-selected according to certain criteria. eLearning systems should adapt its own intelligence to the user based on learning experience of the learners' use of the system. An eLearning system should have a built-in artificial intelligence (AI) facility.

One other limitation of eLearning is that it tends to be uni-dimensional. That is, at present, it relies heavily on the use of keyboards for information input and visual display (VDU) for characters and simple graphics for presentation. The human being is characterized by an unusual complex and comprehensive ability to receive sensory information and facilities to deliver information. Our way of learning in non eLearning contexts is very much based on and facilitated by parallel use of sensory information and multi-dimensional output of information. Learning is much better when we use a combination of, not only visual and

auditory sense organs, but also in parallel using tactile and motor sensory information. By the use of this form of parallelism we are building a holistic and tacit knowledge through which we can develop our learning to a much greater extent. And on top of this, our factual learning and skill development will be in harmony with our emotional learning. Traditional, uni-dimensional learning might create a gap between actual knowledge and emotional development. At present, we do not understand what will be the consequences of this for future generations and their learning needs. Seemingly, there is a risk of some kind of emotionally handicap or, at least, emotional deficiency.

Future eLearning systems should be more closely related to virtual reality (VR) type of technologies. Today VR is more readily used in entertainment and games than in education and training for learning at work. But, if we reflect back in our not-too-distant past, some of the original computer technology was seen as merely suitable for games playing. Obviously, eLearning is not a panacea for resolving all manner of learning issues. Learning in real life and meeting other people in complex social contexts will no doubt continue to be an important prime purpose of learning. At present our eLearning technologies fall short of this goal.

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