

LIFELONG LEARNING - Education and Training

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Key Words: lifelong learning, education, training.

ABSTRACT

THE ILLITERATES OF THE 21st CENTURY WILL NOT BE THOSE WHO CANNOT READ AND WRITE BUT THOSE WHO CANNOT LEARN, UNLEARN AND RELEARN - Alvin Tofler

Lifelong learning is about acquiring and updating all kinds of abilities, interests, knowledge and qualifications from the pre-school years to post retirement which promotes the development of knowledge and competences that will enable adaptation to the knowledge-based society and also valuing all forms of learning. Learning can no longer be dichotomized into a place and time to acquire knowledge (school) and a place and time to apply knowledge (the workplace). Today's students are flooded with more information than they can handle, and tomorrow's workers will need to know far more than any individual can retain.

Lifelong learning is an essential challenge for inventing the future of our societies; it is a necessity rather than a possibility or a luxury to be considered. Lifelong learning is more than adult education and/or training — it is a mindset and a habit for people to acquire.

This presentation identifies essential elements for coherent and comprehensive lifelong learning strategies viz. Partnership working, insight into demand for learning, adequate resourcing involving a substantial increase in public and private investment in learning, facilitating access to Learning opportunities, creating a learning culture and striving for excellence through introduction of quality control and indicators to measure progress. These approaches need new media and innovative technologies to be adequately supported.

A theory of lifelong learning must investigate new frameworks to learning required by the profound and accelerating changes in the nature of work and education. These changes include (1) an increasing prevalence of “high-technology” jobs requiring support for learning on demand because coverage of all concepts is impossible; (2) the inevitability of change in the course of a professional lifetime, which necessitates lifelong learning; and (3) the deepening (and disquieting) division between the opportunities offered to the educated and to the uneducated.

On the basis of the feedback relating to the key messages six priorities for action have been identified: (1) valuing learning, (2) providing information, guidance and counseling, (3) investing time and money in learning, (4) bringing together learners and learning opportunities, (5) ensuring basic skills and (6) introducing innovative pedagogy.

This paper explores conceptual frameworks and innovative computational environments to support lifelong learning and it analyzes why training approaches need to be transcended and how this can be done.

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1. INTRODUCTION

According to the European commission, the scale of current economic and social change, the rapid transition to a knowledge-based society and demographic pressures resulting from an ageing population in Europe and the rest of the world are all challenges which demand a new approach to education and training, within the framework of lifelong learning. Information overload, the advent of high-functionality systems, and a climate of rapid technological change have created new problems and challenges for education and training. More and more knowledge, especially advanced knowledge, is acquired well past the age of formal schooling, and in many situations through educational processes that do not center on the traditional school [Illich, 1971]. Learning needs to be examined across the lifespan because previous notions of a divided lifetime education followed by work are no longer tenable [Gardner, 1991]. Professional activity has become so knowledge-intensive and fluid in content that learning has become an integral and irremovable part of adult work activities. Learning is a new form of labor [Zuboff, 1988], and working is often (and needs to be) a collaborative effort among colleagues and peers. In the emerging knowledge society, an educated person will be someone who is willing to consider learning as a lifelong process.

Learning should be part of living, a natural consequence of being alive and in touch with the world, and not a process separate from the rest of life [Rogoff & Lave, 1984]. What learners need, therefore, is not only instruction but access to the world (in order to connect the knowledge in their head with the knowledge in the world [Norman, 1993] and a chance to play a meaningful part in it. School learning and workplace learning need to be integrated.

2. CONCEPTS OF LIFELONG LEARNING

Common themes conveyed in literature on lifelong learning articulate four characteristics which transform 'education and training' into the concept of 'lifelong learning'.

2.1 Informal learning

The first characteristic of lifelong learning is that it encompasses both formal and non-formal/informal types of education and training. Formal learning includes the hierarchically structured school system that runs from primary school through the university and organized school-like programs created in business for technical and professional training. Whereas informal learning describes a lifelong process whereby individuals acquire attitudes, values, skills and knowledge from daily experience and the educational influences and resources in his

or her environment, from family and neighbors, from work and play, from the market place, the library and the mass media. [Conner, 2009]

2.2 Self-motivated learning

There is a heavy emphasis on the need for individuals to take responsibility for their own learning. Lifelong learners are, therefore, not defined by the type of education or training in which they are involved, but by the personal characteristics that lead to such involvement. Cassandra B. Whyte emphasized the importance of locus of control and successful academic performance.[Whyte, 1978] [Lauridsen and Whyte1980]Personal characteristics of individuals who are most likely to participate in learning, either formally or informally throughout their lives, have acquired:

- The necessary skills and attitudes for learning, especially literacy and numeracy skills;
- The confidence to learn, including a sense of engagement with the education and training system; and
- Willingness and motivation to learn.

Although education and training may have economic benefits for individuals, it is recognized that economic incentives alone are not necessarily sufficient to motivate people to engage in education and training. A range of motivational barriers need to be identified and addressed in order for some people to participate in education and training. While some of these barriers are economic and can be overcome with financial assistance, many people are deterred from engaging in education and training by social and personal factors.

An Australian survey of participants in adult education courses identified a range of factors motivating people to undertake adult learning, such as:

- To upgrade job skills;
- To start a business;
- To learn about a subject or to extend their knowledge;
- To meet new people;
- To develop self-confidence;
- To get involved in the community; and
- To develop personal skills;

- To participate in social networking

By acknowledging the range of factors that act as both a motivation and barrier to engagement in education and training, lifelong learning policies tend to promote participation in learning for its own sake rather than as a means to a specific end (employment). The goal of participation in learning thus appears to be more significant than the reason why. This can be seen as an acknowledgment of the range of factors that motivate people to participate in formal and informal learning other than, or in addition to, instrumental goals. [Watson, 2003]

2.3 Self-funded learning

The concept of self-funded learning is linked to the characteristic of self motivated learning. In recognition of the costs involved in subsidizing lifelong involvement in education and training, the lifelong learning policy agenda emphasizes the responsibility of individuals to finance their own continuing education and training with minimal support from government. The West report defines a lifelong learner as a person who takes responsibility for their own learning and who is prepared to invest time, money and effort in education or training on a continuous basis. [West, 1998]

2.4 Universal participation

A distinctive feature of the lifelong learning policy literature is a commitment to universal participation in education and training. In advocating 'lifelong learning for all', the Organization for Economic Co-operation and Development (OECD) argues that universal participation is necessary for meeting the economic demands of the 21st century. The concept of universal participation includes both informal and formal learning for all purposes - social, economic and personal. In arguing that universal participation in lifelong learning is necessary for social cohesion in a time of rapid economic and social change, the Jacques Delors report proposes four characteristics of lifelong learners that would be the Pillars of a learning society:

Learning to do (acquiring and applying skills, including life skills: equipping people for the types of work needed now and in the future including innovation and adaptation of learning to future work environments);

Learning to be (promoting creativity and personal fulfillment: education contributing to a person's complete development: mind and body, intelligence, sensitivity, aesthetic appreciation and spirituality)

Learning to know (an approach to learning that is flexible, critical and capable: mastering learning tools rather than acquisition of structured knowledge);and

Learning to live together (exercising tolerance, understanding and mutual respect: peacefully resolving conflict, discovering other people and their cultures, fostering community capability, individual competence and capacity, economic resilience, and social inclusion).^L

Lifelong learning can instill creativity, initiative and responsiveness in people thereby enabling them to show adaptability in post-industrial society through enhancing skills to:

- Manage uncertainty,
- Communicate across and within cultures, sub-cultures, families and communities,
- Negotiate conflicts.

The emphasis is on learning to learn and the ability to keep learning for a lifetime so as to attain the goal of a learning Society.

3. TRADITIONAL LEARNING, TRAINING AND LIFELONG LEARNING

Higher-level understanding is through reflection and informal learning. Traditional educational systems, in which the teacher is the sole source of knowledge, are ill suited to equip people to work and live in a knowledge economy. Some of the competencies such a society demands—teamwork, problem solving, motivation for lifelong learning—cannot be acquired in a learning setting in which teachers dictate facts to learners who seek to learn them only in order to be able to repeat them. A lifelong learning system must reach larger segments of the population, including people with diverse learning needs. It must be competency driven rather than age related. Within traditional institutional settings, new curricula and new teaching methods are needed. At the same time, efforts need to be made to reach learners who cannot enroll in programs at traditional institutions. Online and distance programs are considered as some of the methods implemented to achieve this goal.

The lifelong learning model enables learners to acquire more of the new skills demanded by the knowledge economy as well as more traditional academic skills. In Guatemala, for example, learners taught through active learning—that is, learning that takes place in collaboration with other learners and teachers, in which learners seek out information for themselves—improved their reading scores more and engaged more in democratic behaviours than learners not in the program. [De Baessa, et al., 2002] In the United Kingdom learners taught thinking skills in science were able to improve their performance in other subjects, and the effects increased over time.[Adey and Shayer, 1994]

Lifelong learning is more than training or continuing education. It must support multiple learning opportunities including exploring conceptual understanding as well as narrowing to practical

application of knowledge, ranging over different settings such as academic education, informal lifelong learning, and professional and industrial training

3.1 Training

Learning new skills and acquiring new knowledge cannot be restricted to formal educational settings. Effective learning needs to be integrated into the work process. Current teaching programs train people to use what is effectively a snapshot of an evolving technology. Training is often considered as a variable plugged into an economic model. This short-sighted cycle of training and retraining cannot be broken unless we recognize that learning is a lifelong process that cannot be separated from working [Sachs, 1995].

By integrating working and learning, people learn within the context of their work on real-world problems. Learning does not take place in a separate phase and in a separate place, but is integrated into the work process. People construct solutions to their own problems, and the system advises them when they are getting into trouble and provides directly relevant information. The direct usefulness of new knowledge for actual problem situations greatly improves the motivation to learn the new material because the time and effort invested in learning are immediately worthwhile for the task at hand [Fischer, 2000]

3.2 Lifelong Learning

Lifelong learning needs to promote effective educational opportunities in the many learning settings through which people pass, including home, school, work, and the larger political community. Professional work cannot simply proceed from a fixed educational background; rather, education must be smoothly incorporated as part of work activities. Similarly, learning takes place not only at all ages and in virtually all professions; increasingly, it takes place among heterogeneous groups of people in families, clubs, and virtual communities. Insights gained from these individual situations need to be developed into broad and effective theories of learning, innovative and intelligent systems, practices, and assessments across many professional genres. A lifelong learning approach permits integration of the best features of school, community, home, and workplace learning.[Fischer, 2000]

Fig. 1 presents differences between traditional and lifelong learning concepts.

	Traditional learning	Lifelong learning
Emphasis	Basic skills	Education embedded in ongoing work activities
Mode	Knowledge absorption	Knowledge construction
New topics	Defined by curricula	Arise incidentally from work situations
Trainers	Expound subject matter (Teaching)	Engage in work practice (Facilitating)
Problems	Given	Constructed
Method to solution	Mostly personal work	Group work
Role	Expert - Novice model	Reciprocal learning
Assessment	Basis for promotion	Guide learning strategies
Structure	Pedagogy(logical structure)	Work activity

figure 1. Characteristics of Traditional and Lifelong Learning Models

4. REQUIREMENTS FOR AN EFFECTIVE LIFELONG LEARNING SYSTEM

According to Gerhard Fischer One of the major roles for new media and new technology is not to deliver predigested information to individuals but to provide the opportunity and resources for engaging in meaningful activity, for social debate and discussion, for creating shared understanding among stakeholders, and for framing and solving authentic problems. This global perspective leads to the following requirements for lifelong learning:

- Users set most of the goals, not the system.
- The vocabulary, tools, functions, and practices supported by the system come from the working environment, where they are natural and appropriate.
- The mode of operation emphasizes learning from breakdowns and from fulfilling commitments.
- Tools must appear directly relevant to help with the problem at hand; they must not generate further breakdowns.
- Although learning environments may have some built-in expertise, users will find most expert knowledge by locating other people who have the knowledge.

- Some of the tools must help with cross-domain searching: finding similar problems that have been solved elsewhere and reporting on their solutions.
- The systems should aid users in two kinds of reflection Ñ immediate, to deal with the problem and to organize a solution; and post-mortem, to see if the problem is recurrent and can be avoided by restructuring work processes.
- Systems should feature many interactions among people, because these are the sources of most breakdowns.
- Systems should support not only the individual's solo performance, but work in cooperation with others and while belonging to different groups at the same time: systems should support the improvement of collective knowledge as well as individual knowledge.
- **Open Systems:** The needs of people engaged in lifelong learning will transcend the boundaries of any closed system, making mechanisms such as end-user modifiability and end-user programming a necessity rather than a luxury. One of the biggest challenges facing systems in support of lifelong learning is to allow end-users to become co- developers of systems.
- **Collaborative systems:** The individual, unaided human mind is limited: there is only so much we can remember and there is only so much we can learn and with powerful technologies becoming widely available, people take on more jobs that are more complex or more comprehensive. Therefore, they need help accomplishing unfamiliar tasks that are part of an expanded job. Beyond the need for new and changing domain knowledge, there is also a large demand for new tool knowledge. If nobody in a group knows the answer, we have to create new knowledge and new environments that stimulate innovation and creativity by exploiting breakdowns, symmetry of ignorance, experimentation, and external objects serving as objects-to think- with and objects-to-talk-about.

5. LIFELONG LEARNING STRATEGIES: THE BUILDING BLOCKS

Coherent and comprehensive lifelong learning strategies include but are not limited to the following:

- First, recognize all forms of learning, not just formal courses of study.

- Partnership working, between public authorities and education service providers (schools, universities, etc.), the business sector and the social partners, local associations, vocational guidance services, research centres, etc.
- Insight into the demand for learning in the knowledge-based society - which will entail redefining basic skills, to include for instance the new information and communication technologies. Analyses should take into account foreseeable labour market trends. there is the e requirement for collaboration in policy development and implementation among a wide range of partners, including ministries other than education
- Adequate resourcing, involving a substantial increase in public and private investment in learning. This does not only imply substantially increasing public budgets, but also ensuring the effective allocation of existing resources and encouraging new forms of investment. Investment in human capital is important at all points in economic cycles; skills gaps and shortages can certainly co-exist with unemployment.
- Facilitating access to learning opportunities by making them more visible, introducing new provision and removing obstacles to access, for example through the creation of more local learning centres. Special efforts are necessary in this context for different groups such as ethnic minorities, people with disabilities or people living in rural areas.
- Creating a learning culture by giving learning a higher profile, both in terms of image and by providing incentives for the people most reticent to opt for learning.
- Striving for excellence through the introduction of quality control and indicators to measure progress. In concrete terms, provision must be made for standards, guidelines and mechanisms whereby achievements can be recognised and rewarded.
- Reformulation of access and equity priorities in a lifelong context, by looking at the opportunities that are available to individuals across their life-cycle and in the different settings where learning can occur. It is argued that knowledge-based economies and societies cannot afford to exclude a large part of their population from access to education and learning resources. Furthermore, inequalities in society often raise problems of mutual understanding and adjustment within organisations, in society at large and in the democratic process.

6. LEARNING IN SURVEYING

Current educational practices create boundaries that make it very difficult to continue to evolve surveyors' skills. For example, we are educated for land surveying in school settings that have very little contact with field work. Those providing the instructions are sometimes ignorant of the skills that the industries need. Once the surveyors are placed in firms and industries,

however, the problem is still not resolved because industry itself typically takes the standard education model and separates education from practice. In most cases, field coaches are no better informed about the skills that are needed than are public school teachers. In the field, it is common to find instructors teaching students to do a job that the instructor has never performed, or teaching abstract concepts because allowing students contact with the real environment is too dangerous or so to try in the classroom. In summary: current practices, both in public and industry (field)-based education, increase the gap between working and learning. Our approach should be to close the learning-practice gap by forming alliances between formal education institutions and industry thus, tearing down institutional boundaries.

Informal workplace learning (as it often occurs naturally in apprenticeship relationships, such as internships of medical doctors, Ph.D. studies, Students Industrial Work Experience Scheme (SIWES) in the University, Industrial Training (IT) in other higher institutions etc.) has features that make it interesting to serve as a model for lifelong learning:

- It requires the integration of problem framing and problem solving (problems are not given);
- Surveyors/learners are confronted with more demanding aspects of the work accidentally, that is, only when a problem (a breakdown) arises in the context of their work;
- The world is used as a resource (as opposed to closed-book exams in schools); and communication plays a critical role (discussing issues with co-workers, clients, customers, etc.).

Zuboff ([Zuboff, 1988], p. 395) characterizes well how learning increasingly is being integrated into everyday work activities: *"The informed organization is a learning institution, and one of its principal purposes is the expansion of knowledge - not knowledge for its own sake (as in academic pursuit), but knowledge that comes to reside at the core of what it means to be productive. Learning is no longer a separate activity that occurs either before one enters the workplace or in remote classroom settings. Nor is it an activity reserved for a managerial group. The behaviors that define learning and the behaviors that define being productive are one and the same. Learning is not something that requires time out from being engaged in productive activity; learning is the heart of productive activity. To put it simply, learning is the new form of labor"*.

7. BENEFITS OF LIFELONG LEARNING

A number of important socio-economic forces are pushing for the lifelong learning approach. The increased pace of globalization and technological change, the changing nature of work and the labor market, and the ageing of populations are among the forces emphasizing the need for

continuing upgrading of work and life skills throughout life. The demand is for a rising threshold of skills as well as for more frequent changes in the nature of the skills required.

It has also been said that:

Lifelong learning's core values of learning, exploring, and serving, coupled with benefits for the mind, body and spirit make it an incredibly powerful tool for personal transformation and enhancement. [Nordstrom, 2006]

Nancy Merz Nordstrom, M.Ed., lists the top 10 benefits of lifelong learning as such:

- 10) Lifelong learning helps fully develop natural abilities.
- 9) Lifelong learning opens the mind.
- 8) Lifelong learning creates a curious, hungry mind.
- 7) Lifelong learning increases our wisdom.
- 6) Lifelong learning makes the world a better place.
- 5) Lifelong learning helps us to adapt to change.
- 4) Lifelong learning helps us find meaning in our lives.
- 3) Lifelong learning keeps us involved as active contributors to society.
- 2) Lifelong learning helps us make new friends and establish valuable relationships.
- 1) Lifelong learning leads to an enriching life of self-fulfillment. [Nordstrom, 2008]

8. LIMITATIONS AND CRITICISMS OF LIFELONG LEARNING

Observations of learners in our environments in the past indicated that they took advantage of multiple learning opportunities. However, there is the need to carefully investigate possible limitations of our approach, for example, the strengths and weaknesses of learning on demand.

Limitations may include:

- the acquisition of certain essential skills should not be deferred until they are needed because the time to learn them may be not available or the environment may be too dangerous for safe learning processes;

- learning on demand is task driven and therefore may be limited to exposing users to isolated pieces of knowledge while providing only limited support for learning essential principles;
- users may encounter difficulties in decontextualizing knowledge so that it can be used in new settings;
- whereas learning on demand may be well suited for evolutionary extensions of a knowledge base, it may not support substantial restructuring, because the additional features learned occur only in the neighborhood of what learners already know.

Another main criticism of lifelong learning is the predominantly economic interpretation of the term. It has become problematic for many educators and practitioners who have come forward with such terms as “Lifelong (L)Earning” and “Learning to Earn” as their succinct criticism of the way the term is being promoted.

9. CONCLUSIONS

Training and lifelong learning are essential problems for our current and future information societies. Unfortunately (as is probably the case with all important questions and challenges) there are no simple answers and no simple facts that would allow enumerating briefly failures and successes. To acknowledge the complexity of these issues implies that we rethink, reinvent and redesign the way how we think, work, learn, and collaborate in the future. A lifelong learning perspective is more than training and continuing education: it forces us to rethink and reinvent our schools and universities [Brown & Duguid, 1995; Noam, 1995].

We have to understand the co-evolutionary processes between fundamental human activities and their relationships and interdependencies with new media. We need progress and a deeper understanding of new theories, innovative systems, practices, and assessment. We have to create new intellectual spaces, new physical spaces, new organizational forms, and new reward structures to make lifelong learning an important part of human life. We need individuals, groups, and organizations to personally engage in and experience these new forms - risk takers who use their creativity and imagination to explore alternative ways of learning. [Fischer, 2000]

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BIOGRAPHICAL NOTES

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