Considering the dimensions of life-long learning tools

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Life-long learning is a term that has different meanings. It can refer to the learning that occurs in relation to a particular career path, learning inside or outside the workplace, or informal learning that occurs as a part of a hobby or personal interest. Tools that support life-long learning should be malleable enough to effectively adapt to changes in learning mode, behavior and context to take into account changes in the personal circumstances and objectives of learners. This paper presents the beginning of a process to uncover some of the dimensions that can govern the design of adaptable, extensible and customisable life-long learning systems.

1. Introduction

Life-long learning can mean different things to different people. This paper begins with a brief definition followed by a presentation of scenarios in which life-long learning may occur. The 'types of learning' section illustrates how learning activities may change over time. This is complemented by considering the different tools that could be used by learners. Particular focus is given to learners who are carrying out periods of self study. New themes, such as the notion of the Personal Learning Environment, and the role it may play in on-going developments are introduced and considered.

Aspin describes a number of different definitions of life-long learning [1]. Some learners may develop an identity which is tied to and bound-up with learning activities. Others may simply view life-long learning as educational activities that help with life management. Another view is that life-long learning is learning that occurs throughout life. Others may see life-long learning as a set of interrelated ideas that can be used to transform society, enabling its members to become learning resources for its constituents.

The use of information technology creates the potential to enable 'learner peers' to interact and communicate with each other, allowing opinions, materials and learning techniques and strategies to be shared. Learners may gain an opportunity choose and define their own objectives and competencies that suit their needs. In essence, information technology, particularly, networking technology (which represents a both hardware and software technologies) may enable learners to engage with and consume educational resources in new ways.

The precise nature of consumption (and also the production) of educational materials will, of course, vary substantially between learners. To further understand differences it is useful to consider the idea of the 'learner profile'.

2. Learner Profiles

One way to begin to understand the requirements of technologies that could be used to support life-long learning is to build user profiles, a principle that is well known within the interaction design and usability communities [2]. Different types of learner needs can be seen through different learner profiles:

- Jim works within a call centre. He feels that he could make more of a difference within his local community where he is a part time youth worker, but is not sure how. He quite likes the organisation in which he works but he is unclear about what he would like to do in the future. He thinks he would like to do something different.
- Dave is employed in an IT department within a large company. He knows that he is good at supporting people and feels that he will make a good systems administrator one day. Although IT is a field that is always changing, he has decided to take a professional IT qualification to help him gain promotion and develop his knowledge of the area.
- Sue has an interest in local history. Now that she is working only part time, she is finding it possible to learn more about her local area and understand how it has changed over time. She isn't doing this for anyone other than herself. She has always

lived in the area where she lives and regretted not doing anything like this before.

From these simple profiles we can begin to consider the nature of the learning activities and strategies that different individual may use.

3. Types of Learning

The objectives of each learner are very different. Jim's objectives are not yet formed although he might be edging towards a decision about what to do in the future. Conversely, Dave's objectives are clear. He may even want to complete his studies within a particular time frame to minimise his study costs and maximize his earning capacity. Sue, on the other hand, may have few of these concerns. Instead of her learning being directed by a set curriculum it is directed by either herself or those around her.

Issues such as the solidity of the learning objectives, the extent of group working and the amount of time available for learning can broadly be considered to be *dimensions*. Another important dimension is the personal needs of learners. Learners who have decided to enroll on a formal programme of study after some time of not being engaged within education may need support that is different to learners who are well aware of the demands that may be placed upon them. Similarly, learners who have additional needs may also need support to ensure that they can fully participate in learning activities.

Life-long learning is sometimes referred to in conjunction with informal learning. This can be understood to be task-based learning where individuals can use rapid training resources with the objective of learning about a specific activity or task. Jim, our employee within a call centre, may utilise task-based materials to remember how to use unfamiliar parts of the call-centre application that he uses every day. Jim may also have a fixed length of time in which his learning activity can take place. The training department of his organisation may have created a fixed curriculum and developed custom e-learning material.

The issue of objective clarity may dictate the level to which details about learning is shared with other people. Dave is in a different situation. He knows what he wants to do and as a result may be happy to discuss his learning experiences with peers in other companies who may be following similar career trajectories.

For Jim, the possibility of openness may be more limited. His employers may not be happy if he shared information about his learning experiences in a way that could be read by competitors. Sue may also have concerns about what information she may be happy to share with others.

4. Dimensions

From the learner profiles and the previous discussion we can move towards trying to understand whether it is possible to identify dimensions of life-long learning. We can extract some key ideas from the previous descriptions:

- **Objectives**: the clarity of concreteness of learning objectives
- **Formality**: the degree of formality and whether learning exists within a defined study framework
- **Time**: whether learning is to be carried out within a defined time frame
- **Interconnectivity**: the extent that learning activities require or would benefit from collaboration with others
- **Support**: the level of individual support needed to successfully orientate a learner to their tasks
- **Identity**: related to interconnectivity and personal security; the degree to which personal aims and objectives are shared with others.

These dimensions are interconnected. An underlying dimension may be 'adaptability', the extent to which each of these areas could change. Using these terms we could begin to consider the different type of tools could be used to support life-long learning activities.

5. Tool Support

Let us again consider Jim. Jim may be a user of a web-mediated social network. As a result he may have the ability to ask his friends, 'what would you do?' His friends might respond with a set of criteria that he could use to build a framework to help him to plan his future. This activity could occur face to face, or through communication tools such as instant messenger, for example.

Discussion forums that help others to make career decisions can be found for subjects such as taxation, accountancy and medicine as well as IT. Dave may ask more focused questions

such as, 'what exam would you do next?', 'what do you think the hardest part of this course is?', and 'how do you revise this topic?' to prepare for examinations.

Sue's situation is very different. Unconstrained by time and curriculum, her learning objectives are her own. Whilst she may use forums to share details of her project with others, she may use different tools such as mapping utilities to record information about the areas she has studied and diary or blogging tools to keep record information that she has gathered (she may even using her own ePortfolio, perhaps using a set of word processing files to gather the evidence of her research activities).

Each learner could, in essence, create their own personal learning environment [3], [4], using resources found on the internet or tools found within computing devices that they may have access to. Their personal learning environment could be their own laptop computer where each learner could store their files, learning histories and contacts to other people who share similar interests. Alternatively a web-based or peer-to-peer application could be used to share opinions and information with other learners [5].

Two interesting issues include how learners may make decisions regarding the tools that they use (and decide whether they may be useful), how they map to the dimensions and how the tools can adapt to changes in learning activities and practice. It is this issue of adaptability to which we turn to next.

6. Adaptability

Each learner may change their learning trajectory at any time. Jim may make a decision to leave the company in which he works and instead embark on a series of formal courses that would help him to reach his aim of providing help and support to his local community. Dave may decide that he does not want to become a systems administrator and instead wishes to focus on how the existing systems in his company could be modified to ensure that customers are presented with an effective and efficient user experience. Dave's objectives may become unclear.

Sue, on the other hand, could choose to temporarily abandon her informal studies and instead select a more formal path. She may decide that she needs a stronger understanding of what it means to 'study history' and also

wish learn more about some of the subjects that she has found through her informal research. She may now be looking forward to working with others.

Two areas of change can include the formality of the objectives and the amount of learner collaboration that may be required. These issues are underpinned by the need to support adaptability, accessibility and security.

It is an obvious statement that life-long learning tools should invariably place the learner at their centre. Users must be able to manage their identity in such a way that they have complete control over what is presented to others and be able to selectively choose what resources they may consume and when. These issues are particularly pertinent due to the emergence and deployment of software that is increasingly 'social'.

A further point relates to the ways in which adaptable software might be used. A personal learning environment may be used to consume web services to secure access to alternative forms of learning materials (an issue that a related project called EU4ALL is exploring, [6]) or present RSS feeds describing new subject topics, news and courses.

Creating consistent forms of interaction to enable different types and categories of learning tool to work together is a substantial challenge. Furthermore it is necessary to consider how knowledge and usage of tools could be shared between different types and groups of learners.

7. Summary

Some authors have written about the triadic nature of life-long learning, [7], meaning it is often spoken about in three different ways. Firstly, with regards to economic progress and development (Dave's desire to progress in the company where he works), secondly in terms of personal development and fulfillment (Sue's desire to learn more about local history just for the sake of it), and finally, as a way to create and instill inclusiveness and democratic understanding and activity (reflected in Jim's desire to become more involved with his local community). Learners have different motivations. Any personal learning system or life-long learning system must address the need for adaptability and have the potential to change.

The definition of a personal learning environment is not one that is fixed. It can be used to refer to a laptop or personal computer

(in some cases) or a collection of related on-line services that can be accessed through an end user application or web-client. When we consider the need to address flexibility we also need to consider how information about tools (and how to use them) can be shared between different groups of learners. Learning tools have the potential to help users to explore future areas of study, foster the development of study skills and instill an awareness of different learning trajectories that may be available.

There are a number of dimensions of life-long learning tools. These include the clarity and formality of learning objectives, the extent to which collaboration is needed, as well as important practical issues such as identity management and security. Further dimensions are likely to exist and made explicit as new ways of connecting learners continue to be developed.

Creating life-long learning system that is suitable for all learners which comprise of malleable learning tools is a challenging and potentially impossible task, but one that should be explored. This paper has demonstrated the use of learner profiles. Learner profiles are considered to be a useful tool that can be used to uncover interesting yet potentially conflicting (and challenging) user requirements.

References

[1] Aspin, D. N., Chapman, J. D. Lifelong learning: concepts and definitions. In Aspin, D. N. Philosophical Perspectives on Lifelong Learning, Springer, p19-38, 2007.

[2] Preece, J., Rogers, Y., Sharp, H. Interaction Design : Beyond Human Computer Interaction. John Wiley & Sons, 2007.

[3] Johnson, M., Liber, O., Wilson, S., Sharples, P., Milligan, C., Beauvoir, P. Mapping the Future: The personal learning environment reference model and emerging technology, Proceedings of ALT-C, 182-191, 2006.

[4] Sclater, N. Personal Learning Environments, Virtual Learning Environments and Formal Learning, Proceedings of European Distance and E-learning Network, 2007.

[5] Koper, R. Giesbers, B., van Rosmalen, P., Sloep, P., van Bruggen, J., Tattersall, C., Vogten, H., Brouns, F. A design model for lifelong learning networks, Interactive Learning Environments, 13(1), 2005.

[6] Santos, O.C., Boticario, J. G. European Unified Approach for Accessible Lifelong Learning. Proceedings of the 4th International Conference on Multimedia and Information and Communication technologies in Education. Sevilla, November 22-25, 2006..

[7] Hake, B. J., Lifelong Learning in Late Modernity: The Challenges to Society, Organizations, and Individuals. Adult Education Quarterly, 49(2), 79-90, 1999.