

# Self-directed Learning in the Technological Age

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**Abstract:** Concerns arising out of technology often being used as an add-on to self-directed learning practices in the workplace and factors affecting such learning were investigated through a literature analysis. What is needed is an exploration of new possibilities of computational media on how self-directed learners think, create and learn.

## Background and Overview

A focus on the individual learner has a long tradition and history in adult learning. The idea of self-direction, under the guise of numerous names, has existed from classical antiquity to the present. Prior to the establishment of formal educational institutions, self-education was the primary way for individuals to deal with daily matters (Kulich, 1970). One of the greatest developments in our society is that of technology. The information explosion of the technological age has impacted the needs of adults in order to adapt to the changing volume of information. The imminent danger of becoming knowledge-obsolete has spurred adults to embark on self-directed learning more than before (O'Neil & Lamattina, 2000). Technology is providing adult learners with new options for self-directed learning. One of the major misunderstandings in our current debate about enhancing learning with new media is the assumption that technological advances will, by virtue of their very existence, improve the quality of learning. The issues that rise are whether instructional technologies would truly allow self-directed adult learners to take increased responsibility for what is learned, how it is learned, with what resources and so on (Gibson, 2001).

An adult is a person who has reached an age of maturity as defined by the law, and has assumed adult social roles (Merriam & Brockett, 1997). Self-directed learning is "a process in which individuals take the initiative with or without the help of others, in diagnosing their learning needs, formulating goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (Knowles, 1975, p. 18). This analysis views employees in the technological age within a framework of personal autonomy, self-management, learner-control and autodidaxy. It addresses self-direction as a personal attribute, as the willingness and capacity to conduct one's own education, as a mode of organizing instructions in formal settings, and as the individual, non-institutional pursuit of learning opportunities in the natural societal setting (Candy, 1991). The purpose of conducting this review was to explore how the literature of the fields that guide adult education (AE) and human resource development (HRD) treats the phenomenon of self-directed learning in the technological age and to identify the trends and issues affecting such learning for adults in the workplace.

Organizations are rapidly going through changes due to the pressures from increasing competition, information explosion, globalization, and technological developments. Companies in the technological age want more worker involvement in an environment that would support self-directed learning. Other than the organizational initiatives, employees themselves must continue the learning process in order to develop their careers (Desimone, Werner & Harris, 2002). The literature examines self-directed learning in workplaces where employees face the

danger of obsolescence and technological displacement if they do not want to learn continually (O'Neil & Lamattina, 2000). Consequently, they assume responsibility for their learning and set their own pace. The recent developments in technology apply favorably to the learners' own "autonomy" or "self-direction" and in a convenient fashion – their responsibility for their own learning (Mozes, 1982).

### **Method**

The process of searching for articles for the literature review lasted during the weeks of January 28<sup>th</sup> - February 4<sup>th</sup> and the week of February 20<sup>th</sup> - February 27<sup>th</sup>, 2002. Databases in the areas of education and business were probed because these areas were most relevant to the purpose statement. Articles related to self-directed learning, adults, and technology were expected in ERIC, ECO and PsycFirst, while in ABI Inform and WilsonBusiness. I expected to find human resource development and technology articles. I searched these databases with the general keywords "self-directed learning," "lifelong learning," and "self-managed learning." The search was narrowed down by using appropriate descriptors that came about from the articles, which were found in the initial search. Relevancy was determined by reading the abstracts of the articles. Descriptors used were self-directed learning, lifelong learning, self-managed learning, adults, technology, the Internet and HRD. I used the *Handbook of Adult and Continuing Education* (Wilson & Hayes, 2000) as a source of reference because it is the most recent handbook in the field of AE/HRD. Fifteen books were picked from the references at the end of the chapter dealing with self-directed learning (Gibson, 2001).

### **Findings**

Findings of this literature review are classified as (a) inhibitors to self-directed learning in career development; (b) learning readiness; (c) learning style, needs, and skills; and (d) flexibility in learning. Each of the categories encompasses either all or some of the dimensions of the self-directed learning of employees. The last section examines emergent trends and issues related to self-directed learning and knowledge management in the learning organizations.

#### *Inhibitors of Self directed Learning*

*Existence of good training.* The current buzzwords for the training and development profession are "individual learning" and "empowered development." In one sense, these concepts are in contrast with the classical training's classroom environment, relatively passive trainees, and largely predetermined course content and teaching methods. On the other hand, technology seems to enable personal autonomy and self-management. Hardingham's (1996) study on Lloyd's of London showed that though the company always intended the training to lead into self-development and a learning culture, the strong impact of its courses locked managers into wanting more of the same. The better the training provision, the more difficult it can be to get people to move from learning managed by trainers in the training suite to learning managed by individuals in their own offices.

*Techno-phobia.* A lack of experience with computers inhibits self-directed learning in the workplace. The nature of computing experiences is a variable to consider in relation to the questions of interest, self-efficacy perceptions and computer anxiety. This naturally affects the personal autonomy and autodidaxy dimensions of self-directed learning (McInerney, 1990). Not all learners appreciate learning through technology (Gray, 1999). Some experience feelings of alienation and being controlled by technology rather than being able to use it for their own

means. Those who do not have prior experience with hypertexts do not show an increase of knowledge and they often get confused and lost in the maze of hyperlinks.

#### *Learning Readiness*

Every employee does not have the learning readiness of a technology oriented self-directed learner. There are five categories of employees: early innovators, early adopters, early majority, late majority, and laggards (Kasworm, 1997). The first category of employees demonstrates qualities of personal autonomy, self-management, autodidaxy and learner control, while the second category demonstrates personal autonomy and learner control only. The other categories cannot be categorized as self-directed learners in the technological environment of today's workplace. The employees of the first two categories seek out diverse sources, both external and internal to themselves, for their learning and integrate technology into their self-directed learning pursuits. However, the literature does not inform us of the technological infrastructure in an organization as a factor that affects the self-directed learning readiness of an employee.

#### *Learning Style, Needs and Skills*

In the technological age, self-directed learning at the workplace allows employees to learn whenever they have the time, take modules and examinations in any order, and start and stop learning at their own convenience. In 1986, Dr. Honey and Mumford designed the Learning Styles Questionnaire according to which activists are go-getters and thrive on new experiences, reflectors are thoughtful and cautious, theorists are analytical and logical, and pragmatists are creative, practical and innovative (Dabbs, 1999). Within this context, the ability to use resources customized to the employee's particular learning style means a quantum leap in learning effectiveness and efficiency (Palmer & Smith, 1999) an employee who is a self-directed learner first needs to assess his learning needs in order to plan and organize his learning. Computer simulations promote autodidaxy since the employee can clearly see the strengths and weaknesses of his performance. Taking into account the needs and the learning style of the user, a given program can manifest itself in a large number of variations and enhance various forms of learner control (Mozes, 1982). Regarding the type of skills that self-directed employees are learning using technology, only technical skills are learned (Chase, 1999), whereas according to Garger (1999), streaming video and audio allows employees to respond to highly interactive computer-based simulations that enables learning of soft skills like management and leadership.

#### *Flexibility in Learning*

Flexibility is often referred to as a characteristic that facilitates self-directed learning in new technologies. The cognitive flexibility theory (Jacobson & Spiro as cited in Hartley & Bendixen, 2001) postulates that learning can be more effective when complex information is presented in a format that allows for multiple perspectives, links concepts, and stresses the web-like nature of knowledge. The ability to move via links, through virtual space has been claimed as an intellectual lever for employee-learners who can use this flexibility to construct their own understanding of a body of information (Owston as cited in Hartley & Bendixen, 2001). However, this flexibility is not always fruitful. Learners with simple knowledge and epistemological beliefs have difficulty with the nonlinear and multidimensional nature of an ill-defined hypertext system. As a consequence, links to definitions, diagrams, self-check materials, objectives, and advanced organizers may have little positive impact. Similarly, a learner who believes that knowledge is the sum of simple facts may be less likely to take advantage of hypermedia because they are viewed as unnecessary extras that are not related to the facts contained within the text (Hartley & Bendixen, 2001).

Several studies suggested that employees achieve self-regulation of learning in the technological setting. The employee usually plans his/ her own learning through a learning contract. Feedback may be provided through a display that automatically reports cumulative unit completion and mastery. Computer-based instruction that tests a learner frequently and provides the learner with explicit feedback on correct and incorrect responses supports self-evaluation and compels the learner to review the test items and responses (Ley & Young, 2001). The employees can decide on their own measurable learning objectives, demonstrate learning accomplishments, and create evaluation criteria that would determine their own level of expertise gained, and this criterion-referenced evaluation promotes self-regulation (Hatcher, 1997). Self-directed employees frequently establish learning networks that consist of people, both inside and outside of the work group and the company, who have the knowledge that the employee is trying to master and who are willing to share their knowledge and experience with him/ her. Such networks that are usually computer-based can provide constructive feedback to the employee and enable him/her to self-regulate his/ her learning (Tobin, 1998).

### **Emergent Trends and Issues**

A trend is a long-term consistent pattern that evolves over time while issues are questions that arise as a result of those trends. A trend in the technological age appears to be free agents or knowledge workers becoming a part of the workforce and the question arises of how organizations are going to cope with the new phenomenon. As self-directed learning is boosted by the use of hypermedia, the issue of how the learning needs of adults with physical and learning disabilities can be addressed arises too.

Technology has emerged as an empowering force for employees, enabling the spread of information previously controlled by political forces like organizations. The American workforce has realized that their combination of marketable skills increases their ability to compete for jobs that change radically as corporations respond to national and international pressures (Beck, 2001). At the same time, use of technology is providing the same opportunities of growth to employees in other countries, including those in the Third World. The independence of the marketplace is represented in the growth of the Internet, which not only communicates information but also provides access to global markets where every employee can compete for jobs with his/her skill sets. There has been an emergence of the knowledge worker who uses technology to create self-directed learning activities and self-directed work channels that cross national frontiers independent of multinational organizations and regional political alignments. The knowledge worker owns and controls the intellectual tools to create his /her own knowledge base and expand his/ her own skill sets. Driven by the realities of technology that equalize and empower the individual employee, this independent, self-directed, self-educated, highly mobile workforce is learning survival skills in a business world that has traded loyalty and security for highly portable skills. Just as corporations are responding to the forces of change, employees are arming themselves with the tools to compete in the marketplace through self-directed learning.

The issues that rise here pertain to organizational development and personnel training and development in the field of HRD. As independent contracting of employees becomes popular, HRD can create a model that combines the performance needs of multinational corporations with the emerging requirements of an independent workforce. As individual employees assume greater responsibility for their own education needs, providing continued training to the employees becomes a greater issue for HRD. In response to the challenges, practitioners in HRD

need to decide whether they should help create a self-directed independent workforce that has the tools to equalize the employer-employee relation.

### **Directions for Further Research**

Studies need to be conducted on true interactive learning environments that are learner-driven, often enriched with domain-specific abstractions that enable learners to tackle complex problems. Thus, users of these systems must act as teachers and learners at the same time. Users need to be individually completely responsible for constructing and reflecting upon information. This environment must actually allow learners to be truly autonomous, self-regulated and autodidactic, and control his/ her entire learning. But it is not easy to establish this system in the majority of workplaces. In addition to self-regulatory skills and epistemological beliefs, other characteristics that need to be studied are motivation, self-efficacy, ability, physical challenges, and learning disabilities. Some of the flexibility provided by hypermedia materials may actually impede the comprehension of learners with learning disabilities. Since web learning is highly dependent on motivation and motivation is correlated with individuals' technology comfort status, we may be contributing to an expansion of the digital divide.

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