

Chapter 11: e-Learning and Self-Directed Study



Learning Objectives:

Be able to analyze and propose plans for improving support for self-directed study in e-Learning cases from the perspectives of the envisioned human traits and a positive learning environment.

Be able to analyze cases of e-Learning by applying the theories of adult learning.



Summary of this Chapter

- Self-directed learning through e-Learning perceives of e-Learning as a self-management tool for learners. Difference lies between this view and general tendency for organization to use LMS as a management tool. Recalling McGregor's theory, self-directed learning would be based on Theory Y rather than Theory X.
- In order to promote self-directed learning a positive learning environment (PLE) must be set in place. Thirty indicators for assessing whether or not a workplace is a PLE are introduced.
- A number of tasks are essential in order to set up an environment conducive to self-directed learning. These include redefining the roles of instructors, applying scaffolding techniques for online learning, ensuring the interactive qualities of distance learning, and basing it on learner characteristics that influence e-Learning.
- The outcomes from adult learning studies (andragogy) can be applied in order to support self-directed learning. The knowledge and techniques that we acquire when we are young gradually become outdated, and education as "transmission function" is inadequate. Therefore, education must be redefined as "a process of discovering unknown matters." This places certain requirements on the adult doing the learning, such as that they be independent and purposeful, create an atmosphere, engage in "mutual planning" on learning plans, diagnose their personal learning needs, and teachers play a supporting role.

Section 1 Self-Directed Study through e-Learning

E-Learning has been touted as a significant trend in which the independent learning activities of the learner (or organization member) tie in with the goals of the organization, as well as a major revolution seeking a transformation in the notion of human learning. But conversely, perhaps the advantages of e-Learning are not to be found on the side receiving the instruction, but rather on the side that is providing the instruction. To put it more frankly, the alarm has been sounded that while e-Learning has demonstrated its power as a human resource management tool, it may not exhibit effectiveness as a personal management tool. This chapter will arrange e-Learning once again from the perspective of “self-directed study,” and will examine it from the viewpoint of being a tool for self-management, rather than a tool for managers.

In his critical analysis of the e-Learning revolution, Wesley (2002) sounds the alarm over the introduction of learning management system (LMS) as a supervisory outcome in the guise of motivation. To define it as simply as possible, he posits that e-Learning has become a means of **disseminating** instructional materials through the Internet, intranets, or extranets. In modern society, where emphasis is placed on creativity and innovation within the “Knowledge based Economy,” learning by company employees is stressed. He points out that while this fact lies in the backdrop to the e-Learning boom, e-Learning is becoming commercialized at the same time. A style of purchasing commercial software and commercial LMS has become entrenched, and there can be no hope that the learning itself will change, with concerns to the effect that this will only serve to strengthen the management side.

Wesley introduces readers to the fact that frameworks such as those shown in Figure 11-1 exist in the form of social and economic theories on supervision (monitoring) and motivation. LMS has three roles: (1) supervision (monitoring), (2) the collective development and management of learning contents, and (3) creating a virtual learning community. The author draws attention to the fact that the strengthening of supervision (that results) from simply introducing LMS must not be allowed to hinder creative and innovative ideas.

Figure 11-1: Social and Economic Theories on Monitoring and Motivation (Wesley, 2002)

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- 1) Agency Theory: Master-servant relationships are inescapable at companies. Supervision is indispensable.
 - 2) Social Exchange Theory: Feelings of trust, loyalty, and recognition from subordinates manifest themselves through their work efforts. Supervision is counterproductive in that it is seen as a betrayal of trust.
 - 3) Supervision Theory: There are various different theories, such as one that places importance on creating atmosphere, one that states that monitoring has both a “crowding out effect” and a “disciplining effect,” and one that claims that compensation is injurious to one’s intrinsic motivation (Deci & Ryan; thought to have the opposite effect of taking away opportunities for self-evaluation and self-determination). Not only relations with one’s superiors, but also loyalty to the organization and pride in one’s work are sentiments that cannot be ignored.
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Note: Wesley (2002) briefed by Suzuki.

Wesley (2002) draws attention to McGregor’s motivational Theory X and Theory Y. He advocates the distinction between Theory X, which perceives people as leading an irrational existence in which they are unable to exercise self-management and self-control (the assumptions of X are in Figure 11-2), from Theory Y, which perceives people as being naturally motivated and who seek to be themselves at their workplace (Y assumptions). Indicating that a shift away from Theory X, which dominated the 20th century, toward emphasizing Theory Y can be seen, Wesley also points out that there are important differences in the standpoint which determines how supervision and monitoring are viewed.

Figure 11-2: Assumptions about Human Nature which Form the Premises of McGregor’s Theory X and Theory Y

Theory X	Theory Y
<ul style="list-style-type: none"> ● Work is inherently distasteful to most people. ● Most people are not ambitious, have little desire for responsibility, and prefer to be directed. ● Most people have little capacity for creativity in solving organizational problems. ● Motivation occurs only at the physiological and security levels. ● Most people must be closely controlled and often coerced to achieve organizational objectives. 	<ul style="list-style-type: none"> ● Work is as natural as play, if conditions are favorable. ● Self-control is often indispensable in achieving organizational goals. ● The capacity for creativity in solving organizational problems is widely distributed in the population. ● Motivation occur at the social, esteem, and self-actualization levels, as well as at the physiological and security levels. ● People can be self-directed and creative at work if properly motivated.

Source: Hersey, P., Blanchard, K., & Johnson, D. (2000). *Management of Organizational Behavior: Leading Human Resources* (8th Ed.). Prentice Hall, Table 3-1 (p. 67).

The issue of how one views the potential of the members of an organization for self-directed learning undoubtedly affects the basic design of e-Learning. This chapter will take the position that self-directed learning is possible from a number of different standpoints, and that thorough environmental design must be undertaken in order to realize this. It will also consider how instructional designers can bring about self-directed learning.

Section 2 Establishing a Positive Learning Environment (PLE)

Tobin (2000) claims that a company as a whole must be made into a “Positive Learning Environment (PLE)” in order to move forward with self-directed learning. A PLE is defined as having all employees from the president down to regular staff members adopt an attitude of constantly learning in order to achieve business objectives. It describes an organization in which all learning activities are directly tied in with the objectives of the individual, group, and company as a whole, and every member searches for new ideas, tries new approaches, and jointly learns by sharing ideas with others. Figure 11-3 lists 30 items for evaluating whether or not a workplace is a PLE. To what extent does the organization to which the reader belongs correspond to these conditions?

Figure 11-3: Thirty ways to know you are working in a positive learning environment

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1. Ideas are openly solicited from employees at all level, formally and informally.
 2. Messengers are welcomed, not shot.
 3. Mistakes are viewed as education.
 4. Company pays for association dues and work-related subscriptions.
 5. Censorship and negative politics are at minimum or nonexistent.
 6. Employees can freely challenge ideas presented by management, without fear of retribution.
 7. Focus-groups-like meetings are encouraged.
 8. Brainstorming is common.
 9. On-the-job training is used.
 10. Training is encouraged where appropriate.
 11. Supervisors learn what their subordinates are learning in training, and reinforce that learning.
 12. Coaching is common.
 13. Learning is a process, not an event.
 14. 360 degree surveys (hearings with all of the related parties, including superiors, subordinate, and colleagues) are common.
 15. The performance appraisal process is not dreaded and is linked to employee learning and growth.
 16. Cross-functional teamwork is common.
 17. Task forces draw employees from all levels, geographies, and business units.
 18. Every employee is able to give company overview presentation.
 19. Employees are encouraged to enlarge their jobs and to learn about the jobs of their internal and external customers and suppliers.
 20. Career paths within the company extend beyond functional, business unit, and geographic boundaries.
 21. Employees are encouraged to talk with one another to exchange ideas and solve problems.
 22. The company published learning guides for employees in all functions at all levels.
 23. The company provides access to the company library and Internet resources.
 24. Job shadowing (employees act as a shadow to their superiors by accompanying and observing them for an entire day) is encouraged.
 25. Brown-bag seminars (participants can bring their own food and drinks) are given regularly.
 26. Executives spend time talking with, and listening to, employees.
 27. Mentoring programs exist at all level.
 28. Employees are encouraged and rewarded for outside work in their professions.
 29. Employees are constantly on the prowl for best, or better, practices.
 30. Employees look forward to meetings.
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Note: 15 indicators created by Mike Kunkle of PlanSoft Corporation (a company that provides solutions for meetings and events) and added 15 items created by Tobin (From: Tobin, 2000, Table 2-1, pp.26-27).

Section 3 Designing a Learning Environment toward Self-Directed Learning

11-3-1 Self-Directed Learning and the Role of Instructors

Instructor is a specialized profession that will hold major role for the sake of raising the quality of instruction and achieving the effective fostering of human resources from here onward. Forming the foundation for this is not only knowledge of the content of instruction, but also an ID way of thinking. Increasing the number of instructors furnished with training in ID does not just benefit a single company, but has enormous social impact as well.

The role of instruction provided by instructors has not come to an end in information age, nor for the future either. On the contrary, it is growing in importance. This can be seen in the trend of multimedia ID, as well as in the composition of the *ASTD Handbook of Instruction Design and Delivery*, which is the global standard for corporate training. The fostering of human capabilities is something from people to people; as such, the presence of instructors who support learning will likely be reaffirmed as an important element.

At the same time, there are also moves toward reappraising the style of instruction provided by instructors when it comes to corporate training. It has been pointed out that the transition from a style of group instruction, whereby teaching is provided by instructors, to a method of “self-directed instruction,” which utilizes self-study materials, has been making progress. Tobin (2000) seized on this trend in his daringly titled book “*All Learning is Self-Directed.*” Here he points out “whether I am in a classroom, reading or taking a computer-based training program, I, as a learner, I decide what is important to me and, and therefore, I choose what I learn. The learner may not have control over what is being *taught*, but the learner always has control over what is *learned* (p. vii).” He amasses hints designed for organizations to create structures which support autonomous and independent learning.

Regarding group instruction from here onward, it is necessary to handle the affective domain of learning objectives as the results of instruction. All instruction should have as objectives like: “Having received instruction, the learners choose to further deepen their learning concerning the content of instruction,” and “The learners will have come to believe that they will be able to conduct continuous self-directed instruction.” Notably, for IT-related fields which undergo intense changes, an attitude of frequently updating one’s knowledge and skills is required. The essential crux of this is that if the student can be made to think that they have adequately learned through instruction, while simultaneously be instilled with a strong desire to continue studying in the future, then the instruction can be deemed a success. What we are talking about are people like “instructors that can light a fire in the students’ soul.”

Study skills which allow one to teach oneself are most needed support for the affective domain of learning objectives in the sense of imbuing students with a desire for ongoing learning. One must constantly be aware of the skill objectives in that continuous learning imparts students with the know-how concerning how to proceed with self learning (or self-directed instruction) to the extent possible. The instructor’s ultimate objective is to train the students to be able to serve as their own exclusive instructor. From where and in what manner should the needed information be collected? Where can movements in technical innovations be caught hold of? It is desirable for group instruction to foster students as independent self teachers by teaching these and other hints in conjunction. But what should be done so that dependent students, such as those who are persistently unable to learn unless they come to receive instruction, can break free of such habits? In a sense, it is necessary to work

toward the goal of “reducing” the significance of having an instructor present.

I will close this section with the following simile which, while it is a somewhat hackneyed sentiment, holds important meaning for instructors. You can read into it the importance of teaching learning methods, rather than just spraying knowledge.

Give a man a fish and he'll eat for a day. Teach him how to fish and he'll eat as long as there are fish in the pool. But design a training program that helps him learn how to stock and manage his pool, and there is no telling how far he might go (Piskurich, 2000, p.11).

11-3-2: Scaffolding Techniques for Online Learning

Dabbagh (2003) has compiled techniques for scaffolding in online learning by using Web-based course management tools such as those found in Figure 11-4. Regarding the extent to which such techniques should be employed in designing a learning environment, Dabbagh asserts that it is preferable to lay this out by taking three factors—the learner, the study topic, and the context—into consideration as shown in Figure 11-5. The general principle of first setting the scaffold high and then gradually removing it remains unchanged from the age of behaviorism (what was then referred to as “cue fading”) to the present day as well.

In planning an environment which supports self-directed learning, it is necessary to first have the student progress with learning with peace of mind and plenty of support, rather than begin by turning around and telling them to manage their learning on their own. For this reason, the first requirement is to know what one can do in order to provide adequate support. However, one must not forget to consider gradually removing this “scaffold” at the same time.

Figure 11-4: Scaffolding Techniques for Online Learning (Dabbagh, 2003)

Scaffolding Policy	How to Use Web-Based Course Management Tools
Fostering a sense of trust and an open and friendly community	<ul style="list-style-type: none"> • Upload a simple background data on the Discussion Board for the start of the course • Have students introduces themselves to one another through the personal web creation feature
A learning approach of give and take	<ul style="list-style-type: none"> • Have the students hold a discussion on their doubts and concerns regarding what is sought through the course
Coaching (for problem solving activities and study themes)	<ul style="list-style-type: none"> • Provide one on one mentoring by using email • Give feedback on the state of progress through progress management tools • Provide support for group activities through the Discussion Board and chat features, and provide coaching at the group level • Upload works that are in the conceptual phase or that are currently being written to the presentation area or send them as an email file attachment in order to provide timely feedback • Have the students mutually comment on the uncompleted works uploaded to the presentation area
External thought modeling	<ul style="list-style-type: none"> • Demonstrate the thought process synchronously through the use of the whiteboard feature, or demonstrate it asynchronously through the Discussion Board
Provision of scenarios and examples (multiple viewpoints/ analytical thinking)	<ul style="list-style-type: none"> • Provide scenarios and examples to serve as references in order to further deepen understanding of the study contents as part of the provision of instructional materials
Procedure guide for task execution	<ul style="list-style-type: none"> • Provide hints and advice for tackling the tasks by using the “Hints for Learners” tool
Provision of tasks and resources that encourage critical thinking	<ul style="list-style-type: none"> • Post links to sights which support critical thinking • Have the learners search for information by using “Search” tools • Provide indexes and glossaries concerning important words and concepts
Promotion of interaction and collaboration	<ul style="list-style-type: none"> • Encourage back and forth exchanges between the learners themselves (one on one), with the teachers, or among all of the students as a whole through chat, email, and the Discussion Board • Exchange knowledge and ideas by using the whiteboard feature and the presentation area
Searching for solutions through brainstorming	<ul style="list-style-type: none"> • Have students utilize features such as the chat, whiteboard, search, information resources, and presentation features in order to facilitate discussions, the application of knowledge, and collaborative projects through a problem-solving learning process

Note: Table 1 (p. 41) from Dabbagh (2003). While the original was specially written for various WebCT features, general names were used so that it could be applied for other LMS.

Figure 11-5: Variables that Determine the Need for Scaffolding (Dabbagh, 2003)

Variable	Set the scaffold low and spur creation	Set the scaffold high and provide assistance
Characteristics of the learner	<ul style="list-style-type: none"> • Abundance of prerequisite knowledge • Extensive cognitive skills • High motivation • Self-directed • Low anxiety • Internal learning control • Inferential • Reflective • Possesses interpersonal and social learning skills 	<ul style="list-style-type: none"> • Lack of prerequisite knowledge • Limited cognitive skills • Weak motivation • High anxiety • External learning control
Characteristics of the Learning Tasks	<ul style="list-style-type: none"> • Complicated • Indistinct structure • Stress is not laid on practical abilities • Analytical, critical, problem solving skills • Requires collaboration and social interaction • Implicit knowledge that measuring through ordinary evaluation methods is difficult and not explicit • Process dependence 	<ul style="list-style-type: none"> • Simple • Clearly defined • Emphasis is placed on practical abilities, or the practical level is stressed • Complete acquisition through drills is demanded • Practical abilities that are observable and measurable • Product dependence
Context	<ul style="list-style-type: none"> • There is time for fully utilizing reflective monitoring skills • Emphasis on “learning of learning methods” • Collaborative • Possible to personalize learning objectives • Centered on the learner • Constructivist methods are employed 	<ul style="list-style-type: none"> • Learning time is limited • Outcome accountability is serious • Emphasis on task implementation skills • Learning objectives are unified, or are determined by another person • Instructor-led or centered on the program • Objectivist methods are employed

Note: Table 2 from Dabbagh (2003). Dabbagh created this by referring to Smith & Ragan, 1999, p. 125.

The cognitive apprenticeship model posits that the timing to lay down the scaffolding is in the third stage of learning. Namely, the learner undergoes the following stages:

- Stage 1: Modeling: A practitioner (teacher) who has mastered the subject presents an example, which the students observe.
- Stage 2: Coaching: The teacher provides advice and examples and teaches with great attention to detail.
- Stage 3: Scaffolding: The teacher has the learner do it on their own while providing support.
- Stage 4: Fading: Support and guidance are gradually reduced until ultimately the students are made self-reliant.

This was once understood through Isoroku Yamamoto's explanation of military strategy in which he said, "People will not move, unless you show them, tell them, let them try, and praise them," and overlaps with Gagné's nine events of instruction in many ways.

It is possible to take a stake that people should be trained to be capable of completing their work with scaffolding, without aiming for the fourth stage. This position believes that while constantly relying on human assistance is problematic, being capable of working through the use of scaffolds in the form of information technology and tools which support the execution of duties, rather than people, should be made the ultimate objective. The Committee on Developments in Science of Learning (2002) points out that information technology is coming to be used as a scaffold for people. For example, they identify that there is enormous significance in new data expression methods, and the fact that enabling the visualization of data has made it easy to go through a routine of trial and error in the process of searching for problems. Despite the fact that there are different positions among researchers over issues like the learning levels and goals of the scaffold, they compiled their findings by saying, "there is agreement that the new tools make it possible for people to perform and learn in far more complex ways than ever before (p. 215)."

In order to get people to understand how to wisely use such scaffolds, a diverse array of scaffolds must be prepared, which implies that they will be introduced from the outset to alert people that such convenient tools exist. They should also be allowed to experience what sort of e-Learning tools are offered and what possibility will be offered is. By first taking care of the learners to the maximum extent possible, you may gradually pull out such scaffolds leading to improving their own learning ability.

11-3-3: Rubric on the Interactive Qualities of Distance Learning

Figure 11-6 shows a rubric for distance learning proposed by Roblyer & Ekhaml (2000). A rubric describes an evaluation criterion by breaking it down into several stages. It can have multiple indicators to show how high the level of interactivity is, by adding scores to make the total points. This rubric extracts four perspectives, which are considered to be important: (1) building social rapport (good relations), (2) instructional designs, (3) the levels of interactivity of technology resources, and (4) the impact of interactive qualities as reflected in learner response. By checking these perspectives and producing a general score, it is possible to diagnose the extent to which the course in question achieves interactivity.

Figure 11-6: A Rubric on the Interactive Qualities of Distance Learning (Roblyer & Ekhaml, 2000)

Scale	Element#1: Social Rapport-building Activities Created by the Instructor	Element #2: Instructional Designs for Learning Created by the Instructor	Element #3: Levels of Interactivity of Technology Resources	Element #4: Impact of Interactive Qualities as Reflected in Learner Response
Few interactive qualities (1 point)	The instructor does not encourage students to get to know one another on a personal basis. No activities require social interaction, or are limited to brief introductions at the beginning of the course.	Instructional activities do not require two-way interaction between instructor and students; they call for one-way delivery of information (e. g., instructor lectures, text delivery).	Fax, web, or other technology resource allows one-way (instructor to student) delivery of information (text and/or graphics).	By the end of the course, all students in the class are interacting with instructor and other students <i>only</i> when required.
Minimum interactive qualities (2 points each)	In addition to brief introductions, the instructor provides for one other exchange of personal information among students, e.g., written bio of personal background and experiences.	Instructional activities require students to communicate with the instructor on an individual basis only (e. g., asking/responding to instructor questions).	E-mail, listserv, bulletin board or other technology resource allows two-way, asynchronous exchanges of information (text and/or graphics).	By the end of the course, between 20-25% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).
Moderate interactive qualities (3 points each)	In addition to providing for exchanges of personal information among students, the instructor provides at least one other in-class activity designed to increase social rapport among students.	In addition to the requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and share results within their pairs/groups.	In addition to technologies used for two-way asynchronous exchanges of text information, chatroom or other technology allows synchronous exchanges of written information.	By the end of the course, between 25-50% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).
Above average interactive qualities (4 points each)	In addition to providing for exchanges of personal information among students, the instructor provides several other in-class activities designed to increase social rapport among students.	In addition to the requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and share results with one another and the rest of the class.	In addition to technologies used for two-way, asynchronous exchanges of text information, additional technologies (e. g., teleconferencing) allow one-way visual and two-way voice communications between instructor and students.	By the end of the course, between 50-75% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).
High level of interactive qualities (5 points each)	In addition to providing for exchanges of personal information among students, the instructor provides a variety of in-class and outside-class activities designed to increase social rapport among students.	In addition to the requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and outside experts and share results with one another and the rest of the class.	In addition to technologies to allow two-way exchanges of text information, visual technologies such as two-way video or videoconferencing technologies allow synchronous voice & visual communications between instructor and students and among students.	By the end of the course, over 75% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).
Total for each	_____ pts.	_____ pts.	_____ pts.	_____ pts.
Total overall _____ pts.				

Note: Roblyer & Ekhaml (2000). In terms of yardsticks in evaluating interactive qualities through the total overall points, 1-7 points indicates low interactive qualities, 8-14 indicates moderate interactive qualities, and 15-20 indicates high interactive qualities.

11-3-4: Learner Characteristics that Influence e-Learning

The types of psychological research on characteristics of the learner that influence e-Learning have been compiled in Figure 11-7. Various different research results have been obtained regarding the characteristics of learners. Yet conversely, the problem of how to harness the fact that each individual learner differs in various aspects in creating instructional materials and designing learning environments cannot be resolved in a straightforward manner.

For example, there is the so-called “disorientation problem” in which the absence of spatial cognitive abilities can make one lose track of where they are in a hyperlink space. It is not very realistic to prepare two types of materials—instructional materials for people with strong spatial cognitive abilities (without help) and those for people with poor spatial cognitive abilities (with help). Even surveying whether one has strong or poor spatial cognitive abilities (by means of questionnaires, or through the psychological experiments) at the beginning of the instructional materials may not be realistic.

It can be done to speculate how often “people with poor spatial cognitive abilities” will be among the users, then some safety measures can be taken. If it is highly probable, then navigation help can be incorporated. Or, for features that “people with strong spatial cognitive abilities” will probably not use, prepare them as options and indicate that “use when in doubt, but it is perfectly fine not to use them when they are not needed.” Naturally, there is a cost involved in making your material user-friendly for everyone, and one must simultaneously brace oneself to the fact that features which trouble was taken to provide may not be used much. Therefore, an approach of first having people use instructional materials which are moderately user-unfriendly on an experimental basis, then making them somewhat more user-friendly if flaws are detected is required (i.e., feedback and revision in formative evaluation). It must be noted that failing to do this carries with it the risk that one will end up with (over-bloated) instructional materials in which nothing but superfluous features are conspicuous.

Knowing the learner characteristics of your users should not immediately be taken to mean that instructional materials must be tailored to every single learner. At the very least, you can collect information, but do nothing. Determining whether or not certain learner characteristics have the potential to impact the design of the instructional materials and learning environment will help in assessing what can be corrected in the event that flaws of one form or another arise.

One more point would be to aim for the secondary effect of gradually improving (or altering) learner characteristics. It has been said that more advanced metacognitive skills are required in a hyperlink environment rather than traditional teacher-led learning environments. That being the case, the aim is to improve metacognitive skills by studying through the use materials with hyper links that will gradually imbue the learner with metacognitive skills.

Understanding what sorts of traits are inherent in your one’s characteristics as a learner is a necessary step to have control over oneself. Understanding would lead to personally design a learning environment that is optimally tailored to yourself. From this perspective, it is believed that raising metacognitive skills would serve as a touchstone in realizing self-directed learning.

Figure 11-7: Learner Characteristics that Influence e-Learning (Miller & Miller, 2000)

a) Cognitive Characteristics

a-1) Epistemic beliefs: Philosophy concerned with the manner in which learning occurs

People that uphold simple epistemic beliefs prefer a more structured learning environment and find it difficult to learn well in a hyperlink environment. People that consider learning to be a complicated, flexible, and unstructured enterprise prefer a hyperlink environment and show strong applied skills.

a-2) Cognitive styles: Personal characteristics that are preferred when processing information

Field independence and field dependence: People that are field dependent are easily led astray by elements that are unrelated to learning, which serves as a hindrance in retrieving the necessary information. Field independent people have a strong ability to extract information out of chaos in a systematic manner and can learn well in a hyperlink environment.

- Scanning: with a narrow focus on detailed information and those with a broad focus
- Constricted vs. flexible control: Ability to remove things which act as obstacles to focus
- Reflection: Proportion of ideas created to impulsive responses
- Concept segmentation and integration abilities: highly skilled in categorizing or not
- Risk acceptance vs. caution: What types of methods are chosen to achieve objectives?

a-3) Spatial ability:

The ability to properly recognize and represent space, being able to manipulate it in one's head.

Graphical charts are effective for people who lack exceptional spatial ability

a-4) Metacognition skills:

The ability to control awareness and the learning process with regard to how one's own learning is progressing. People with strong metacognition skills are able to monitor their own learning, which thereby allows them to recognize what knowledge is needed at present and appropriately utilize effective strategies in order to obtain said knowledge. The required metacognition skills grow more advanced in situations where learning environments are flexible, and so proper structuring is necessary.

a-5) Learning style:

There are individual differences in terms of how people proceed with learning. The results of research indicate that there are "serialists," who follow a procedure and move forward bit by bit, and "holists," who survey the overall picture. But at present all that can be concluded is that one's learning style does not have a very significant impact on the results of learning,

b) Desire to learn:

Since one's desire to learn has a significant impact on learning activities, instructional materials must first be soundly designed. What is more, it is important to have people firmly understand the significance of web materials, ascertain that the web use skills needed in order to access information are ensured, and grasp the contents of learning. Not only that, but it is also essential that people be made to understand the significance behind making it possible to promote learning via the web.

c) Knowledge:

Basic knowledge and the skills for promoting learning by using web materials form the foundation for promoting web learning. For the start of learning, it is worth determining the extent of the person's study habits, computer skills, and basic Internet skills; and also exploring the incorporation of suitable training components into the materials.

d) Social context:

This refers to deepening understanding through collaborative work with other people such as colleagues. Scaffolding (experts, colleagues, the actual structure of instructional materials) is performed from a Vygotskii-type perspective. In a certain sense, in some cases the actual structure of instructional materials measures up to learning together with human partners. It should be noted that experimental studies have not reached the conclusion that joint learning is always effective. It cannot be assumed that learning results will be improved because joint learning elements have been incorporated.

Note: Summary of a text (pp. 166 - 170) by Miller & Miller (2000) by Suzuki.

Section 4 Adult Learning Studies (Andragogy)

The term “andragogy,” or adult learning studies, is a compound word formed from the Greek “andros” (meaning adult) and “agogos” (meaning instruction). The term was introduced into US educational research in 1986 by Knowles as the name of an academic field concerning adult learning, as contrasted with educational theory for children (pedagogy). Human life spans are growing longer, while at the same time societies and cultures are transforming over short periods of time, owing to which the knowledge and skills that we acquires while we are young gradually grow outdated. Such studies posit that education in the form of “traditional functions” is inadequate, and must be redefined as “a process of discovering unknown matters.” Ideas like the learner-centered education and client-centered therapies from counseling psychology’s Rogers and the need for self-actualization found within Maslow’s Hierarchy of Needs, which states that there is a sequence in which human needs should be fulfilled, all constitute the background for this.

Broadly defined, adult learning studies refer to the academic discipline which systematically studies the overall policy structure and implementation process for adult education (adult education research and theory). Knowles defined it as “the art and science of helping adults learn” (Clanton, 1999).

Adult learning models, which are postulated on the developmental characteristics of adults, are premised on the five elements indicated in Figure 11-8, and their differences with educational studies for children have been compiled in Figure 11-9.

Figure 11-8: Premises of Adult Learning Models (Knowles)

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- (1) Emphasis on self-concept: Transforming from a dependent self to being “self-directed”
 - (2) The experience of the adult learner is used as a learning resource
 - (3) Readiness for learning is based on need with regard to one’s social role
 - (4) Orientation for learning is problem solving-centered and promptness of applying the acquired knowledge is sought
 - (5) It is important that the motivation for learning come from internal inducement, rather than external rewards or regulations
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Note: From Japan Association of Lifelong Education (1990) *Encyclopedia of Lifelong Learning*. Tokyo Shoseki Co., Ltd. (p. 28)

Figure 11-9: Differences between Andragogy and Pedagogy (Nishioka, 2001)

Component	Pedagogy	Andragogy
Learner	Traditional self-concept	Self-directed self-concept
Learner's experience	Does not act as a learning resource Must be built up in the future	Is helpful as a learning resource for others while simultaneously being useful in one's own learning
Learner readiness	Consolidated according to age and curriculum	Develops in accordance with one's social role, life challenges, and problems confronted
Orientation for learning	Subject-centered type	Challenge- or problem-centered model
Desire to learn	External inducement such as rewards or punishments	Internal inducement such as interest or concern

Source: Shoko Nishioka (2001) *Creating Lifelong Learning from the Perspective of Andragogy*. Nakanishiya Shuppan (p. 137)

The methodology for corporate training and higher education in Japan has largely gone unexamined from the perspective of adult learning. The teaching style familiar for us is the “school-like method,” with which we were raised as learners, so we use it also in corporate training and higher education. Not only does this methodology lack effectiveness and appeal for adults, but it also neglects learners as adults who should be and can be independent learners. This long-lasting practice may have fostered a disposition of over-reliance on instructors. Consequently, opportunities for developing one's individual disposition (which varies from person to person) to the utmost extent possible may have missed. If this has been the case, huge social losses like this are not to be found anywhere else.

If the aim of e-Learning is to provide a more flexible learning environment that encompasses the possibility of both going well and going poorly, premised on the assumption of a proactive learner, then it must be grounded in the general principles of adult learning. No one wants to be treated like a child.

Figure 11-10 lists the seven fundamental axioms that are required for effective adult learning environments. In addition, Figure 11-11 contains the differences in program components between andragogy and pedagogy. You may begin by checking whether or not your learning environments established as e-Learning measure up to these fundamental principles and redesign your ideas.

It is thought that being able to self-manage one's learning, establish personal goals and maintain one's own particular fixations, and prompt personal growth is a sign of a true adult. For e-Learning design, consideration must be given to providing an environment in which the adults are able to raise themselves up with self-confidence and pride, while retaining the awareness that they are adults. For this reason, the knowledge and expertise from adult learning studies will serve us as tremendous reference sources.

Figure 11-10: Seven Fundamental Principles for Adults to Learn Effectively (from Andragogy, Knowles)

1. Create a climate in which the learner feels welcome and respected, and which induces independent participation
2. Introduce a learning program of mutual planning in which the learner personally takes part in devising and drafting their own learning plan and are able to share responsibility equivalent to that of the instructor
3. The learner must personally perform a self-diagnosis of their own learning needs and their intrinsic motivation to accomplish these must be raised
4. The learner must be able to plan and implement learning activities and control the speed of learning on their own
5. The learner must discern the learning configuration and learning resources on their own in order to accomplish the learning goals
6. The teacher must play a supporting role in order for each and every one of the learners to achieve their plan
7. The learner must evaluate the results of their own learning and re-diagnose the gap between their learning objectives and learning results on their own. Moreover, the results of this diagnosis must lead into the next step

Note: From Japan Association of Lifelong Education (1990) *Encyclopedia of Lifelong Learning*. Tokyo Shoseki Co., Ltd. (p. 29)

Figure 11-11: Comparison of Program Elements for Pedagogy and Andragogy (Nishioka, 2001)

Component	Pedagogy	Andragogy
Climate	Tense, low degree of trust Formal, cold Authoritarian Competitive judgment	Relaxed, mutual trust and respect Informal, genial Accommodating, cooperative Support
Plan	Teacher's initiative	Together with the learner
Diagnosis of needs	Teacher's initiative	Together with the learner
Setting of goals	Teacher's initiative	Together with the learner
Learning plan	Created by the teacher Logical nature of teaching units Follows the course syllabus	Together with the learner Create projects Study themes are arranged in accordance with readiness
Learning activities	Teaching and transmission techniques Homework of reading books	Exploratory learning Self-directed style of learning Experiential learning techniques
Evaluation	Done by the teacher Emphasizes standards Rating	Self-evaluation from facts observed by other learners, the teacher, and others

Source: Shoko Nishioka (2001) *Creating Lifelong Learning from the Perspective of Andragogy*. Nakanishiya Shuppan (p. 137)

In closing this chapter, Figure 11-12 will introduce points that must be kept in mind for a self-directed learning configuration which have been pulled together from lifelong learning environment. There is no small number of adults who are hesitant to participate in learning activities because they are located far away from schools or because they dislike the lecturer-centered learning configuration like schools. You can get a feel for the point of a self-directed learning configuration in which assistance and advice are provided to learners by those around them, more so than they are being taught.

Figure 11-12: Points that the Learner Must Keep in Mind regarding Self-Directed Learning (Endo, 1999)

- (1) The type of detailed knowledge and techniques to be learned must be determined.
- (2) Detailed activities, methods, instructional materials, and tools for learning must be determined.
- (3) Where the learning will occur must be determined.
- (4) Detailed goals must be established for when the learning concludes and its mid-way point.
- (5) When to start the learning must be determined.
- (6) The most recent level of one's knowledge and skills must be considered and consideration given to how much improvement is needed in order to attain the level of knowledge and skills that one would like to learn.
- (7) Factors which have previously hindered learning must be discovered and unsuitable aspects in one's most recent learning method must be searched for.
- (8) The desired instructional materials and tools must be obtained and preferred locations for learning must be discovered.
- (9) A room for learning must be prepared on one's own and the learner must conform to the location found.
- (10) Money must be set aside in order to ask people and guarantee the instructional materials for learning.
- (11) Time must be found for learning.
- (12) The motivation to begin learning must be raised and learning must commence.

Source: Katsuya Endo (1999) *Recent Lifelong Learning in the United States: Its Current Status and Initiatives*. Kawashima Shoten

Reference

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	End of chapter report assignment (Chapter 11)	
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Write a report on one or more of the following three assignments:

- 1) Compile any questions or doubts that occurred to you while reading this chapter (Chapter 11), as well as any comments, opinions, impressions, and so on. Including any previous personal anecdotes related to the descriptions in this chapter, added information, or anything that you have examined and the results (affix the name of the source of information) in your consideration will serve to deepen your understanding.
- 2) Take up one example of existing e-Learning materials or an e-Learning environment (such as the e-Learning system in place at a company for example) and analyze it by using assumed character traits (Theory X and Theory Y) and “Figure 11-3: Thirty ways to know you are working in a positive learning environment.” It is preferred that you analyze the experience in receiving an education at school and in society that you have had so far, as well as educational activities that you have personally conducted, rather than limiting yourself to case examples of e-Learning.
- 3) Take up one example of existing e-Learning materials or an e-Learning environment (such as the e-learning system in place at a company for example) and analyze it by using reasoning from adult learning (andragogy). It is preferred that you analyze the experience in receiving an education at school and in society that you have had so far, as well as educational activities that you have personally conducted, rather than limiting yourself to case examples of e-Learning.