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It's not kid stuff anymore

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Introduction

It has been shown over time that when the economy is bad more people turn to education to change careers or grow within their current job. Many times these new students are non-traditional, or over 25 years of age. These students have some different needs that educators should be aware of to insure the success of the student. The following paper will help define andragogy as it has been utilized in education. It will analyze the growth of the science as it was introduced and how it has developed over time. There are many theories associated with this science as it defines adult learning. Self Directed Learning (SDL) seems to be the leader in this area, so this will be defined and explained in detail along with other learning environments. Finally, the paper will describe how the industry in areas related to engineering technology could apply these concepts and their needs for adult learning.

Definitions

Andragogy is a term used in the academic area to describe the process of life-long learning in adults. The word was first introduced in Germany in 1833 as Andragogik by Alexander Kapp to describe the education theory of Plato[2]. Derived from the Greek word aner with the stem andra meaning "man, not boy" or adult, and agogus meaning "leader of" making andragogy. It has been defined by the Department of Andragogy at Bamberg University in Germany as "the science of the lifelong and lifewide education / learning of adult"[4]. The development of andragogy became evident in the 1920s when teachers were finding that the pedagogy for teaching children did not apply to all of the needs of the adult learners. A social scientist, Rosenstock reported to the Academy of Labour in Frankfort in 1921 that adults should co-operate with the learners[1]. In 1968, Malcolm Knowles defined the term as "the art and science of helping adults learn"[1,2]. This was thought to be a new label and a new technology towards education[11].

Development

Malcolm Knowles is thought to be the first developer of the American version of andragogy that he learned from Dusan Savicevic in 1967[7,8]. His model was based on the ideas that pedagogy is

the science of teacher-centered methods applied to children while andragogy is a learner-centered method more appropriate for adult learners. He argued that the child and adult had many different learning styles, which made it necessary to introduce the new model. Many critics believed that he had an over simplified representation of his beliefs. Then the model was initially presented, the journal, Adult Education, carried a debate that Malcolm actively participated in[8]. Some believed that Malcolm did not have a theory, but rather a technique for teaching adults. Others believed that Malcolm was just pointing out the difficulties that adults would have in learning. Despite the negative expressions from colleagues, Malcolm's first book was published in 1980 and his works continued until his death in 1997. In 1998, The Adult Learner. The Definitive Classic in Adult Education and Human Resource Development, a book co-authored by Malcolm, Knowles, Elwood Holton III, and Richard Swanson was released in its fifth edition. This 17-chapter book covers all of the core principles of adult learning, practices, perspectives and planning guides. It contains 612 references. The four basic assumptions by Knowles is that as individuals mature:

a. They move from a dependant personality towards one of increasing self-directedness,
b. They accumulate an experience that becomes a broad base that they can relate to new learning.
c. They are learning because of social roles (career) not because of biological development or academic pressure.
d. They are problem-centered rather than subject-centered because of their immediate application of the knowledge.[9]

These assumptions are really very simple and common sense if we compare a traditional college student (under the age of 25) to a CPA taking courses in new federal tax laws. Using this as an example, the traditional college student taking a math course may not be self motivated; they may not have experiences to relate to their course; they have academic pressures which motivate their need to attain knowledge and they are learning a subject that might not be immediately applied. On the other hand, a professional taking a course assisting their job (a CPA learning new tax laws), all of the above assumptions can be applied. Although a CPA might be required to take courses for their professional license, they are self-directed to learn the materials that will be applied to their previous knowledge base of accounting, a necessity for their career advancement and directly applied to their work. Understanding these differences facilitate a teachers role when administering adult courses.

Theories

Regardless of the interpretations, of which educators continue to disagree, the facts point to the need to teach adults differently. It is true that some children may have the characteristics of adults, and vice versa may be true for immature adults, but there still needs to be guidelines for adult learning. All educators recognize the importance of learning theory. The father of learning- style theory, Carl Jung, noted differences in the way students perceive, decide and interact[14]. So, it would seem practical that children and adults would have differences. The basis of andragogy explains the perceptions, decisions and interactions of adult as they differ from traditional students.

The first part of Malcolm's outline is the area of adults being more self-directed. This is a major pillar of andragogy. Many studies have been done to try and explain the theory of SDL. The basics of this concept are:

a. The learner accepts the responsibility for one's own learning.
b. The learner makes a transformation by learning new subject matter and by applying life experiences.
c. The learner may learn for social or political reasons. [11]

The SDL theory has been studied for over thirty years with hundreds of papers written on its analysis and the analysis of models ranging from the early linear ones to complex matrix. I believe that the brief explanation above is enough to emphasize the importance of its involvement in practices of adult learning.

One tool that has been developed to help classify adult learners is the Philosophy of Adult Education Inventory (PAEI)[2]. This can be used to explore the perceptions of adult's learning characteristics. As with all teaching, it is best to understand the learner. In a technology school, the students are more visual and kinesthetic learners than auditory learners, so hands on activities with visuals of a lab are used more than a lecture format. This knowledge would aid a teacher in understanding the student.

Studies were done to see if teachers of adults do teach differently. Two separate studies were done using the same model and instruments. Information was collected using a self-reported questionnaire and followed up by classroom observations. Although the teachers did not report changing their teaching styles, they did have different perceptions of their learners. The studies showed that the teacher's perceptions of their students was that the adults were more motivated to learn, willing to work hard at learning, clear about what they wanted to learn, and concerned with practical applications and implications of learning[7]. The only congruence to the self-reported data and observed behavior was the change in classroom environment for adults. Other studies have supported the environment beliefs with the suggestions that the ideal climate for adults is nonthreatening, nonjudgmental atmosphere where a learner is expected to share in their responsibility for learning[6].

Engineering Technology Applications

The Bar Association controls lawyers, a Professional Engineers License (P.E.) registers designers, and the American Institute of Constructors (AIC) regulates a Certified Professional Constructor (CPC). These are just a sampling of the professional organizations with requirements for continuing education of adults in industry. Apprenticeship programs in union and non-union organizations also have programs that are continually instructing adults. The traditional programs are thought of as years of hands on training in the areas of welding, safety or craftsmanship, but new programs also include a curriculum that can be articulated with an Associate Degree at a college. Today's employers are encouraging education and have incentives to attain a college degree to build the numbers.

Most professional organizations have many programs for continued education. The Associated General Contractors of America (AGC) sponsors training, which range from advanced management programs for senior executives to educational opportunities for hourly employees[3]. The AGC of Indiana has an Educational Forum Committee made up of construction industry and academic representatives meet regularly to discuss the current needs of the local industry. Having served on this committee, I understand the largest concern is producing an event that will attract the adult learners on a repetitive basis. Understanding the learning styles of adult learners could assist the effort to make the event a success.

A company can mandate continuing education in construction. In the Indianapolis, the Indianapolis Construction Roundtable (IRC) sponsor events throughout the year. I attended one such even on emerging technologies in construction and found that many companies required their management to attend. Having the speakers understand the concepts of andragogy could enhance these seminars.

Some states also require hours of continuing education credit to maintain their professional license. Florida is one of the first states to create a professional licensing and require contractors to acquire fourteen hours of continuing education units over a two-year renewal period[13]. Specialty contractors like the mechanical industry have found that their contractors want to educate employees. The Plumbing Heating Cooling Contractors Association (PHCC) and the Mechanical Contractors Association (MCA) have weeklong training sessions in which they utilize professors at major universities. They do this by having the conferences at the university, the PHCC uses the Purdue University campus in West Lafayette, IN and the MCA utilizes the University of Texas campus in Austin, TX.

Manufacturing has always done training as the needs of the industry change with new safety regulations or changing technology; this would be another example of where adult learning will increase. I believe that the knowledge of the area of andragogy can increase the success of continuing education programs in construction.

Conclusion

The conference for American Association for Adult & Continuing Education (AAACE) in 1997 has the best summary from its president for andragogy. The president gave the opening remarks that they were gathered together to "share resources in order to make adult learning a joy, a tool, a right and a shared responsibility"[12]. I believe that teaching professionals must understand the objectives specified by agrology when their audiences are adults. The academic need to continually interact with industry and other academics support their understanding of a varied student population. In the area of construction education, I believe that this information would aid in making a program successful. If the learners are using their knowledge in a comfortable environment, then they will walk away from the learning experience with a sense of accomplishment and be more likely to return. This would promote even more continued education.

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