INTRODUCTION

As we rapidly approach the year 2000, it is more true than ever that knowledge gained at any point will become increasingly obsolete as time passes. This fact is reflected in the number of adults who are enrolling in institutions of higher education. Indeed, lifelong learning and its companion, experiential learning, are far more than passing fads. They are necessary to survive in the information age in which we now live. People of all ages must work continuously to stay current with the world as it develops and changes around them, and as a result, institutions of higher education must seek to change the way teaching and learning takes place. In many schools much of the course material is transmitted much as it was 100 years ago, with lecture as the primary delivery mode.

If higher education is to maintain and strengthen its role in preparing students for the future and the constant changes they will face, and of serving the many adults who are returning to school, new models or frameworks must be explored. As college teachers work with students of all ages, their roles may need to shift in some cases from that of transmitter of information to facilitator and collaborator.

One such model that holds promise for adult education is andragogy. Andragogy, "the art and science of helping adults learn," is a model of learning as contrasted with pedagogy, the art and science of helping children learn (Knowles, 1980, p. 43; Merriam, 1993, p. 8). Most currently-accepted theories of learning have been derived from the study of animals and children, not adults. The term andragogy appears to have first been coined by a German grammar school teacher, Alexander Kapp, in 1833 to describe the educational theory of Plato. The term was again used in 1921 by a German social scientist, Eugen Rosenstock, who expressed the opinion that adult education required special teachers, special methods, and a special philosophy. "It is not enough to translate the insights of education theory (or pedagogy) to the situation of adults... the teachers should be professionals who could cooperate with the pupils; only such a teacher can be, in contrast to a 'pedagogue,' an 'andragogue'" (Knowles, 1978, p. 49).

Approximately twenty-five years ago, Malcolm Knowles introduced the European concept of andragogy to North American adult educators. Although others have explored and written about the subject, Knowles appears to be the most prolific and is most closely identified with this concept. Knowles himself does not attempt to present andragogy as an empirically-based theory of learning, but rather as "simply another model of assumptions
about learning to be used alongside the pedagogical model of assumptions” (Knowles, 1980, p. 43).

THE ANDRAGOGICAL MODEL OF ADULT LEARNING

Educators who have worked primarily with adults in situations where attendance is voluntary, and sometimes where there is no degree or credit awarded, have long recognized that they had to violate some of the assumptions and concepts of pedagogy if they were to help—and keep—their students. Knowles asserts that as an individual matures, his/her need and capacity to be self-directing, to utilize personal experience in learning, to identify his/her own readiness to learn, and to organize his/her learning around life problems, increase steadily from infancy to pre-adolescence, and then increase rapidly during adolescence. Thus, natural maturation is characterized by a decrease in dependency (Knowles, 1978, p. 54).

Knowles bases the andragogical model on five major assumptions:

1) As a person matures, his or her self-concept moves from that of a dependent personality toward one of a self-directing human being.

2) Adults accumulate a growing reservoir of experience, which is a rich resource for learning, and from which they derive their self-identity.

3) The readiness of an adult to learn is closely related to the developmental tasks of his or her social role. Adults become ready to learn when they experience a need to know or do something in order to perform more effectively in some aspect of their lives.

4) There is a change in time perspective as people mature—from future application of knowledge to immediacy of application. Thus, an adult is more problem-centered than subject-centered in learning.

5) Although some external motivators (better job, promotion, etc.) influence adult learners, they are most often internally motivated by such factors as self-esteem, recognition, better quality of life, and self-actualization (Knowles, 1984, pp. 9-12).

Knowles definitely subscribes to the constructivist view. To Knowles, learning is not the discovery of an independent, preexisting world "out there," but rather the construction of meaning through experience. Also, learning is more subjective than objective, with an emphasis on individual interpretation, integration, and even transformation of knowledge (Merriam, pp. 16-17).

ADULTS AS LEARNERS

Knowles’ assumptions lend credence to research done by Allen Tough in the 1970’s. Tough’s research indicates that adults, at least in this country, are actually lifelong learners, whether or not they pursue formal learning activities at postsecondary institutions. Tough cites results from a number of studies conducted in Western countries that indicate that the anticipated use or application of some knowledge or skill is the strongest motivation for the majority of learning efforts, and that a great deal of adult learning is related to a person’s job or occupation. There is a need for immediate results, rather than an anticipated payoff months or years in the future. In addition, adult learners prefer to self-plan their learning activities in order to choose the material that is relevant and appropriate to their immediate needs. These findings mesh well with the assumptions of andragogy.

WHO ARE THESE ADULT STUDENTS?

For the purposes of this paper, adult students are defined as those students who are age 25 and over; who are usually employed, often full-time; and attend classes on a part-time
basis. Many are married, have children, and come from a wide range of social, ethnic, and educational backgrounds. They are also likely to be first-generation college attendees, and often have deficiencies in basic skills, thus making them underprepared for college-level courses. According to the National Center for Education Statistics, 42 percent of the 12.2 million students enrolled in institutions of higher education in 1989 were 25 years of age or over, and almost 75 percent of them were part-time students (Watkins, p. A27). Currently, more than half the community college enrollment nationwide is part-time, and the average age of community college students is well into the 20’s (Heermann, et. al., p. 3).

The adults who are returning to school are full of contradictions, strengths, and weaknesses. They have rich backgrounds of experience from many areas. They have worked, served in the military, travelled, and coped with economic problems and challenges associated with raising families and running a household. For most of these adult students, school is not their highest priority; it is another item to be juggled in an already full daily schedule of work, child care, domestic and civic responsibilities. Even though many adult students truly desire to be in school, while others are more motivated by job requirement pressures and career advancement incentives, they are not able to give school their undivided attention. Adding to many adult students’ apprehension is the fact that many of them are at a transition point in their lives—job changes, becoming a single parent through divorce or the death of a spouse, and other stressful events (Polson, p. 1).

Most adult students, though, are internally motivated to a greater degree than younger students, and are in class because they want to be there. They also tend to be active, organized learners. They are more likely to favor informal teaching methods and look for practical, immediate applications of the material they are learning, and are more likely to challenge the traditional authority of the teacher as the expert who imparts knowledge. In fact, they are more likely to treat their teachers as peers.

THE ROLE OF THE TEACHER IN ANDRAGOGY

In a truly andragogical setting, teachers are not "on center stage" delivering instruction to waiting students. They are more often facilitators who assist students in their own self-directed learning. In other literature concerning adult learning, Michael Galbraith confirms that effective teachers of adult learners must possess diverse characteristics, such as being prepared, showing an interest in students, having the ability to make the subject matter interesting, being objective in dealing with learners, and possessing understanding, flexibility, patience, humor, and practicality. These teachers must "wear many hats" within the teaching and learning transaction, including role model, counselor, content resource person, mentor, learning guide, program developer, and institutional representative (Galbraith and Shedd, p. 9).

IMPLICATIONS FOR COMMUNITY COLLEGES

The implications of Tough’s and Knowles’ research for community colleges are significant. Often assumptions are made that community colleges serve student populations who are somehow not very "together"; that they are not self-directed, that they need considerable external control, and that they need structure in order to succeed at learning and growing. In other words, if they had it together, they would be attending a "real" school, i.e., a four-year college or university. It is true that many students who enter community colleges are often less prepared for college and come from lower socioeconomic and more varied racial and ethnic groups than their four-year counterparts. However, research by Tough indicates that blue collar and lower middle income people in fact learn at a rate similar to that of other socioeconomic levels, even if the content of their learning is different. Self-directed,
independent learning is something quite integral to adults in this day and age; it is the content that varies. The "curricula" of the work place, the home, the family, and the church occupy considerably more of their time than the curriculum of the college (Heermann, et. al., pp. vii). Another assumption that is often made is that once these students enter community colleges, they will embark upon and complete the required curriculum in the two-year timeframe usually exhibited by the traditional college-age student. This usually is not the case, as adult students often have a variety of other responsibilities in their lives and they are not able to commit to a full-time college experience.

Tough maintains that if we, as educators, have a better understanding of the context in which learning takes place for adults, we may gain a better idea of learners' needs and the services that colleges might offer them. In addition, for those adult learners who are seeking formal credits and credentials which may be needed for occupational advancement, colleges need to recognize the knowledge and competence these adults already possess in order to avoid redundancy and to provide real service (Tough, p. 304).

The concept of lifelong learning raises a host of difficult, ticklish, and profound questions for education and educators. The questions challenge conventional thinking about curricula, learning sites, evaluation, and student achievement, not to mention teaching (Heermann, et. al., p. 10). In considering long-range changes that may eventually need to take place within the structure of higher education, Heermann and the editors of Serving Lifelong Learners make several suggestions for community colleges for more effectively serving these adult learners:

1) Mechanisms are needed to assess the self-directed learning projects that lifelong learners have initiated prior to entry into college.
2) We need to affirm adults as learners, recognizing their competence, regardless of its source, with academic credit which appropriately relates to our degrees.
3) More flexibility is needed in structuring curriculum requirements; however new ways to learn should be emphasized over new programs and new courses.
4) We need to be less preoccupied with control and more concerned with supporting and guiding students in learning pursuits.
5) We need to implement learning contracts and other nonclassroom, individualized learning strategies for linking students to community resources, beyond the walls of our campus, reinforcing their sense of self-direction and power as lifelong learners (p. viii).

STRATEGIES FOR INCORPORATING ANDRAGOGY INTO TECHNICAL COMPUTER CLASSES

Knowles' andragogy model has been criticized by some as being too simplistic and assuming that all adult learners are a homogeneous group that possess the same experiences and characteristics. Indeed, adult learners have different styles of learning just as younger students do. Furthermore, many of the tenets of andragogy and lifelong learning do not fit well into the existing structure of regular college credit courses, including semester-long courses which include a specific content to be covered, and administration of grades. However, many of the principles of andragogy can be successfully incorporated into existing computer courses by a committed teacher.

Atmosphere.

Throughout his works, Knowles asserts that the andragogical approach requires a psychological climate of mutual respect, collaboration, trust, support, openness, authenticity, pleasure, and humane treatment, and that it is the responsibility of the facilitator (teacher) to
provide such an atmosphere. Instructors can begin this task the first class period by having students complete an information form or open-ended questionnaire to provide background information about themselves, their reasons for enrolling in the course, their previous work-related or course-related experience with computers, and their learning styles. Students will frequently share their apprehensions about working with computers in this manner, and the instructor will know from the beginning those students who may need extra support and encouragement. Instructors should be willing to be flexible and willing to let adult students make up work that is missed for legitimate reasons, such as sickness of a child, having to work overtime, or being out of town for business. Such policies should be outlined at the beginning of class and in the syllabus. Such policies, of course, must apply uniformly to all students in the class, not just adult students.

In maintaining a comfortable and conductive atmosphere in the classroom throughout the semester, teachers can provide encouragement and positive reinforcement, which can greatly aid adult students who may be unsure about their ability to master computers. Instructors should attempt to deal with mistakes one-on-one or in private conferences if possible, not in front of the class. All students should be encouraged to experiment with commands and functions. Students should be frequently assured that no one, including the teacher, gets it right the first time they try! It should also be emphasized to the students that they will not damage the computer hardware by entering incorrect commands.

Self-directedness.

One of the central assumptions of andragogy is that adult learners are self-directed and should be allowed to plan their own learning experiences as much as possible. Long and Walsh (1993) report on studies concerning self-directed learning. Two studies in particular confirm the value of self-directed learning skills for community/junior college students. These studies, conducted by Garstka (1984-1985) and Meyer (1983-1984) found that students are more successful in class and more likely to persist if they have received instruction in study skills, training in self-directed learning, and if the classroom environment is supportive and self-directing. Also, corporate managers who were contacted generally agreed on the importance of self-directed learning competencies in employees (p. 159). Long and Walsh conclude that learner psychological control appears to be a greater factor in learning outcomes than other factors such as instructors’ learning styles. Students tend to be more successful in classes that give them the opportunity to be involved in self-diagnosing their own learning needs. Students also seem to place a higher priority on course completion if they are involved in making decisions about their own learning (Long and Walsh, p. 163). To this end, instructors could make available to students a selection of problems or case studies, from which they could choose those which are most applicable and relevant to them.

Given the current realities of a 16-week semester, an approved course description and competencies to which the instructor must adhere, and the different levels of readiness that students bring to any course, it is not practical or realistic to expect to fully implement self-directed learning in a traditional college course. Also, it is important to keep in mind that self-direction is not the preferred mode of learning for all adults, especially in a technical area such as computer instruction. Indeed, some students expect and even demand the instructor to be the content expert, and to lead them in a more traditional way. However, the instructor can attempt to accommodate all students by engaging in a more traditional lecture/explanation approach at the beginning of the semester or when a new concept is first introduced. Lecture classes can also be useful for summarizing and reinforcing concepts and commands previously used, adding information and explanations from other sources, and relating concepts to practical applications. It is also very useful if the instructor has access to an overhead and
projection panel to project output from the computer screen to demonstrate commands and point out relevant menus and other information on the screen. Once students understand the basic concepts, lab assignments can be made that can be completed individually or in a collaborative or team approach. Active learning is frequently mentioned throughout the reviewed literature as an effective technique when dealing with adult learners, and it is especially relevant in the area of computer education. Active participation, hands-on exercises, and frequent reinforcement are critical elements for success in computer classes.

Learning experiences.

Instructors of adult students should strive to show respect for adult learners' past experiences and incorporate these experiences into class discussions and projects whenever possible. By sharing "real world" situations where computer skills and applications are needed, adult students can also help younger students see the relevance and practical use of the skills being learned in the course.

Problem-centered learning.

The andragogical process requires involving learners in mutual planning, diagnosing their own needs for learning and formulating their learning objectives, designing and carrying out their learning plans, and evaluating their learning (Knowles, 1984, pp. 15-18). Knowles, as well as Stephen Brookfield, Alan Knox, and Michael Galbraith, strongly advocate the use of learning contracts as an effective way to help adult learners structure their learning. Learning contracts provide a means by which students can actively participate in their learning experiences by diagnosing their learning needs and translating these needs into relevant learning objectives. In addition, students identify, with the help of the facilitator (teacher), the most effective resources and strategies for accomplishing their objectives. Finally, the learner specifies what evidence will be collected for indicating how the objectives were accomplished and how they will be evaluated (Knowles, 1984, pp 18-19). Using a modified form of learning contracts may be possible in a structured credit course by specifying certain minimum competencies that must be attained by all students for a passing grade. Students who wish to complete additional assignments or design their own learning activities can negotiate with the instructor for a higher grade of a B or an A. Also, students can be assigned a project of their own choosing due at the end of the semester to demonstrate a practical application for some of the software packages that are covered in the course. By choosing their own topic for the project, students are able to apply the course content to a real problem in their lives, either on a personal or professional level. I have successfully used such a project assignment for several semesters, and many students have commented that they learned more about applying the software to real problems by completing the project than they had all semester.

Although these recommendations deal with a specific discipline, they certainly can be adapted for use in virtually any classroom of adult learners.

OTHER IMPLICATIONS FOR ANDRAGOGY

Andragogy can be viewed by educators at all levels as providing a set of guidelines for designing and delivering instruction for learners who are more self-directed than teacher-directed. Rather than viewing andragogy as appropriate only in situations where adults are learning, the assumptions of andragogy can apply to young adults (the traditional college-age students), adolescents, and even children. Andragogy should not be considered the antithesis of pedagogy; the pedagogy-andragogy debate represents not opposing models, but rather a
continuum ranging from teacher-directed to student-directed learning. Both approaches can be appropriate with learners of any age depending on the situation.

To demonstrate how pedagogy and andragogy can be viewed as points along a continuum, adults who know little or nothing about a topic usually benefit from teacher-directed instruction (pedagogy) until they have enough knowledge to begin directing their own learning (andragogy). Apart from the credentialing role of higher education, the fact that so many adults are returning to college to enroll in structured classes may mean that adults recognize they need the help of a recognized content expert in a given subject, at least to get them started in the pursuit of the subject. Knowles reports that an increasing number of teachers in elementary and secondary schools are experimenting with applying the concepts of andragogy to the education of youth and are finding that in certain situations they were producing superior learning (Knowles, 1980, p. 43).

CONCLUSION

As this paper has attempted to demonstrate, andragogy should be viewed as a model of assumptions that has many implications for the training and education of learners in community colleges and other institutions of higher education. The current enrollment statistics for community colleges demonstrate a trend that more and more adults (over 25) are attending college for various reasons and this trend is expected to continue. If we, as instructors, are to interact effectively with these adults, many of whom are older than the instructor, awareness of the assumptions of andragogy would be helpful. Not all instructors can or desire to implement andragogical teaching techniques in their classes. However, simply becoming aware of how adult students may differ from traditional college-age students in their outlook on life, the influence their backgrounds and life experiences have in how they approach school, and their need for immediate application of the subject matter, may help instructors interact with students so they learn more effectively.

REFERENCES


Imel, S. (1994). Guidelines for working with adult learners. ERIC Digest No. 154. Columbus, OH: Ohio State University, ERIC Clearinghouse on Adult, Career, and Vocational Education.
Kerka, S. (1994). *Self-directed learning. Myths and realities*. Columbus, OH: Ohio State University, ERIC Clearinghouse on Adult, Career, and Vocational Education.


