Pedagogy, Andragogy and Heutagogy

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ABSTRACT

The purpose of this chapter is to provide an overview of the theoretical foundations of pedagogy, andragogy and heutagogy. A brief description of the most common pedagogical theories, cognitivism, constructionism and behaviorism, as well as emerging theories such as social pedagogy, Pedagogy 2.0 and Education 3.0 are discussed. In addition, the tenets of andragogy, including its linkages to transformative education are presented. Heutagogy, which is self-determined learning, is also presented. This chapter also provides a discussion of whether pedagogy, andragogy and heutagogy are on a continuum or can be exhibited at any time during the educational experience, particularly with the advent of more advanced educational technologies.

Key Words: Epistemologies, Self-directed Learning, Self-determined Learning, Holistic Learning

INTRODUCTION

The Merriam-Webster Dictionary Online (2014) defines pedagogy as “the art, science or profession of teaching” (p.1). Smith (2012) defined it as “the art and science (and maybe even craft) of teaching” (p. 1). Knowles (1973) defined it as the art and science of teaching children. Pedagogical principles began around the time a more formal educational experience was adopted about 13 centuries ago in the monasteries of Europe where monks were the most educated of the population at that time. The term comes from the Greek terms paid and agogus which mean leader of a child (Holmes & Abington-Cooper, 2000).

This concept of andragogy was first defined by Alexander Kapp in 1833 to describe the teaching style of Plato who formalized Socratic principles (Nottingham Andragogy Group, 1983). Merriam Webster Dictionary Online (2014) defines andragogy as “the art and science of teaching adults.” Andragogy was not used in North America until 1970 when the concept was published by Malcolm Knowles. Knowles (1970) defined it as the art and science of helping adults learn.

While andragogy is student-centered or student-directed learning, heutagogy is self-directed learning. The seminal work on heutagogy was done by Hase and Kenyon of Southern Cross University in Australia in 2000. Heutagogy is a much more holistic approach which teaches students how to learn and gain the competencies and skills they need for their selected field. In simpler terms, pedagogy is faculty-centered education, andragogy is student-centered education and heutagogy is self-directed and transformative. This chapter will present multiple educational theories that have led to models in pedagogy, andragogy and heutagogy.
PEDAGOGY

There are numerous educational theories that helped develop pedagogy as it is today. The “Big 3” theories of cognitivism, constructionism and behaviorism will be briefly presented, as well as emerging theories related to transformative learning.

Cognitivism

The basis of cognitive learning theory is based around how the brain of the learner gains and processes information. Perhaps the most widely accepted cognitive learning theory is Gagne’s conditions of learning theory. In this theory learning requires different instructional designs, strategies and learning outcomes. Gagne’s nine events of instruction were discussed in Chapter 2. Instructional design is based on cognition where instruction is created that will meet various types of learning styles.

One important component of cognitivism is the concept of learning styles. Kolb in 1984 outlined four types of learners that are presented in table 5.1 below:

<table>
<thead>
<tr>
<th>Learning Style</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodators</td>
<td>Hands-on learning</td>
</tr>
<tr>
<td>Converger</td>
<td>Hands-on learning and theory</td>
</tr>
<tr>
<td>Diverger</td>
<td>Real life experience and discussion</td>
</tr>
<tr>
<td>Assimilator</td>
<td>Theories and facts</td>
</tr>
</tbody>
</table>

*Table 5.1 David Kolb Learning Styles*

Another learning style model that gained great prominence is Fleming’s VARK model (Fleming & Mills, 1992) which categorizes learning as visual, auditory, reading/writing preference or kinesthetic. This model is based on the historical model that was used as far back as the Greeks in educational history with the additional category added. This model is outlined in Table 5.2 below.

<table>
<thead>
<tr>
<th>Learning Style</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual</td>
<td>Preference for pictures and visual aids</td>
</tr>
<tr>
<td>Auditory</td>
<td>Preference for lectures and discussion</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>Preference for hands-on learning</td>
</tr>
<tr>
<td>Reading Writing Preference</td>
<td>Prefers to read and write to learn</td>
</tr>
</tbody>
</table>

*Table 5.2 Fleming & Mills VARK Model*

Harold Gardner (1985) expanded the theory of learning styles even further with his theory of multiple intelligences. The intelligences outlined by Gardner are represented in Table 5.3.

<table>
<thead>
<tr>
<th>Intelligence</th>
<th>Abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical Mathematical</td>
<td>Numerical patterns and structured reasoning</td>
</tr>
<tr>
<td>Linguistic</td>
<td>Understands sounds and rhythms of language</td>
</tr>
<tr>
<td>Musical</td>
<td>Appreciates rhythm, pitch and timbre</td>
</tr>
<tr>
<td>Spatial</td>
<td>Appreciates concepts dealing with visual-spatial world</td>
</tr>
<tr>
<td>Body-kinesthetic</td>
<td>Appreciates movement</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Receptive to people’s moods and emotions</td>
</tr>
</tbody>
</table>
Intrapersonal: Able to understand one’s own emotions

Table 5.3 Gardner’s Multiple Intelligences

All of these theories attempt to understand why learners learn the way they do, as well as why they prefer specific types of learning. This is guided by the underlying premise this is caused by the physical and chemical makeup of each individual’s brain. Some theories of cognitivism, such as Gagne’s, were built to explain the premises these theorists felt were not explained by constructivism.

Constructivism

In constructivism, students obtain knowledge by filtering new knowledge through their own personal experiences. Perhaps the most famous constructivist theorists are Jean Piaget, John Dewey, Maria Montessori and Lev Vygotsky. Piaget’s constructivist theories are based on the concepts of adaptation where learners adapt to their learning experiences through assimilation and accommodation. In assimilation, new knowledge is learned within the context of previous knowledge and experiences. Accommodation includes making judgment and assumptions about new knowledge based on previous knowledge and experiences (von Glaserfield, 1989). John Dewey was an advocate for students noting students were not vessels to be filled and learning can only occur when a student can connect new knowledge to his own life and experiences. In addition, the student determines both quality and quantity of learning; however, it cannot be totally student-centered because facts and truths also determine instruction. Dewey was a proponent of hands-on learning (1902).

Maria Montessori’s constructivist theories were built among three major concepts: 1) student choice, 2) working with curriculum rather than direct instruction, and 3) interrupted blocks of learning time (American Montessori Society, 2014). Vygotsky (1978) postulated students learn long before they ever begin a formal education. In education he advocated for a zone of proximal development to determine what a student can do with help and without help. In this case, the educational process helps the student step up to this next level of knowledge.

The curriculum design theory most widely associated with constructivist theory is backwards design by Wiggins and McTighe which is outlined in chapter 2. A second instructional model is problem-based learning and authentic assessment. In problem-based learning, the following curriculum design principles should be used:

- Learning activities should be built around a larger task or problem
- Learner must gain ownership for task or problem
- Task must be authentic
- Task should be reflective of the complexity of the learning environment
- Learner must be given ownership of the process to solve the problem
- The curriculum design must support and challenge the learner’s thinking
- Design so learner can test ideas of alternate concepts
- Provide an opportunity for learner to reflect (Savery & Duffy, 1995)

Some constructivist theories have been grouped under the category of student-centered learning. Proponents of student-centered learning include John Dewey, Harold Gardner and Lev Vygotsky whose theories have been previously discussed. Another proponent was Benjamin Bloom whose taxonomy was covered extensively in Chapter Two. Perhaps the most famous theorist in student-centered learning was Carl Rogers whose name is synonymous with this concept. Student-centered learning is based around the premise of teachers being facilitators to allow students to develop their own critical thinking skills. He
recommended education be conducted in a non-threatening environment to enhance student performance and that students not only learn from teachers; teachers also learn from students (Rogers, Lyon & Tausch, 2013).

Constructivism and cognitivism have some similarities in that educational experiences are built around student experiences. In contrast, in behaviorism, curriculum is designed as a stimulus to induce learning.

**Behaviorism**

In behaviorism it is hypothesized learning occurs when the learner is subjected to a stimuli, such as new knowledge. Behaviorism is a psychological approach. Some of the most famous behaviorist theorists include Pavlov, Watson and primarily in education, Skinner. Pavlov used dogs to demonstrate a conditioned response to outside stimuli using food. This was called a condition reflex (Todes, 2002). John Watson took this theory of conditioned behavior called classical conditioning and applied it to humans with his “Little Albert” experiments where he subjected an 11 month old boy named Albert to negative exposure to white rats by clanging a large iron rod every time the rat was presented. Eventually, Albert became afraid of all white animals proving Watson’s theory (Watson & Rayner-Watson, 1921). Skinner’s (1953) theory of operant conditioning is based on learning curves. This is trial and effect learning with positive and negative stimuli. Skinner (1968) outlined a teacher-focused model where the teacher arranges reinforcement in the form of curriculum to expedite learning. Both academic and social operants are used to accomplish this. In education, the positive stimuli is good grades and positive reinforcement; negative stimuli is poor grades and negative reinforcement. Drill and practice are educational events that are most closely associated with behaviorism.

The curriculum design model most closely associated is the Dick and Carey instructional model. Dick and Carey created the ADDIE model outlined in Chapter 2. Their steps of their recommended design processes in this primarily teacher-focused model are listed below:

- Assess needs
- Conduct instructional analysis
- Analyze learners
- Write objectives
- Develop assessments
- Develop instructional strategy
- Develop and select instruction
- Perform formative assessment
- Revise instruction (Dick, Carey & Carey, 2014)

Since its original printing, Dick and Carey’s foundational text has been updated to include more content and updated curriculum methods and processes. The next theory that will be discussed is the emerging theories of social pedagogy and transformative learning that are important to the context of this book.

**Emerging Pedagogies**

The first of the emerging pedagogies that is relevant to this text is social pedagogy as outlined by Freire whose basic theories were outlined in regards to transformative learning in Chapter 1 of this text. Freire notes in “Pedagogy of the Oppressed,” education is re-presentation of the things students want to know more about. Authentic education is not delivered to a student or it is not only about the student himself, instead it is “mediated by the world” (1970, p.168). Rather than indoctrinate students to facts and concepts, students must be liberated to learn for themselves.
In regards to emerging theories, McLoughlin and Lee (2008) discussed “Pedagogy 2.0.” All students, no matter what their age, are now juggling work, study and technology. This technology has caused a blurring effect between their academic, work and social lives. Students are now consumers of information. This was the vision of Tim Berners-Lee, the creator of the internet who noted in 2000, “…the information has something to which everyone has immediate and intuitive access, and not just to browse, but to create” (p. 169). Technology has the ability to increase and supplement traditional student/faculty and student peer engagement. However, this can cause a greater pedagogical disconnect in what students want and what faculty members think they want in their educational experience. In addition, to keep pace with students, faculty must also hone their technology skills. Pedagogy 2.0 also has a social pedagogy focus where all learners become creators and consumers of information. However, some of this information is of good enough quality for educational purposes while much of it is not. The skills of information creation, inquiry and networking which created connectivism are critical characteristics of Pedagogy 2.0 according to McLoughlin and Lee (2008).

McLoughlin and Lee (2008, p.15) outlined guidelines for effective implementation of Pedagogy 2.0:

- Micro-units of content generated by students and faculty
- A dynamic curriculum open to learner input
- Multiple opportunities for various types of communication
- Contextualized, reflective learning processes
- Informal and formal resources that are global in scope
- Scaffolding between students, peers, faculty, experts and communities
- Authentic task-driven, experiential learning

These researchers also identified the “3P’s of Pedagogy 2.0” which include personalization, productivity and participation which increase learner autonomy.

Since “Pedagogy 2.0” was based principally on Web 2.0 tools, which includes social software, in education we are now fully within the bounds of Web 3.0 tools, otherwise known as the “Semantic Web” which was coined by Tim-Berners-Lee. The semantic web allows better integration of web content which in essence is created by other more descriptive web languages and data models other than html. The semantic web differs from Web 2.0 in that it is better at defining and describing relationships between data (W3C, 2014). In response, the term “Pedagogy 3.0” was coined by Jim Vanides at Hewlett Packard in 2010 as the tools educators and students will need in the Web 3.0 world. Gerstein (2013) calls this “Education 3.0” and notes that it is truly self-directed learning or heutagogy. This will be discussed later on in this chapter.

**ANDRAGOGY**

All of the educational theories discussed so far have been primarily pedagogical in nature. Knowles brought the idea of andragogy into the learning community in the 1970s when he proposed there is a difference in the way adults learn. Knowles (1970) developed five assumptions that underlie his theory of andragogy:

- Adults are self-directed learners.
- Adults bring a great deal of experience into the classroom.
- Adults who seek education are ready to learn.
- Adults are internally motivated.
- Adults want problem-based learning.
Knowles did not view andragogy as a true epistemology. Instead he viewed it as a concept rather than a theory. He based his work on that of constructivists, in particularly Carl Rogers. He also based it on the hierarchy of needs developed by Abraham Maslow. As learners continue to mature, they become more self-directed (Blondy, 2007). Knowles (1980) outlined a seven-step process for faculty to promote andragogy:

- Develop cooperative learning environment
- Involve learner in the setting of goals
- Diagnose learner needs and interests
- Help learner formulate objectives based on his/her interests and needs
- Design sequential learning experiences to meet these objectives
- Meet objectives with materials and resources
- Evaluate the quality of learning and impact on future learning

In Table 5.4 there is a comparison of the major tenets of pedagogy and andragogy.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Pedagogy</th>
<th>Andragogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role of Learner</td>
<td>Dependent</td>
<td>Self-Directed</td>
</tr>
<tr>
<td>Role of Faculty Member</td>
<td>Delivers knowledge</td>
<td>Facilitates Knowledge</td>
</tr>
<tr>
<td>Experiential</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Primary Activities</td>
<td>Lecture-Based; Objective Testing</td>
<td>Experiential Strategies: group work, case studies, simulations, field experience; varied types of testing</td>
</tr>
<tr>
<td>Readiness</td>
<td>Are told when they are ready</td>
<td>Decide what additional knowledge is needed</td>
</tr>
<tr>
<td>Sequencing</td>
<td>Step-by-step uniform progression</td>
<td>Based on learner skills and readiness</td>
</tr>
<tr>
<td>Learning</td>
<td>Facts which will only be useful later on</td>
<td>Process-oriented for future potential</td>
</tr>
<tr>
<td>Curriculum</td>
<td>Simple to Complex</td>
<td>Competency-based or categorical</td>
</tr>
<tr>
<td>Age Group</td>
<td>All age groups; but primarily K-12</td>
<td>Higher education (although concepts can be applicable to K-12)</td>
</tr>
<tr>
<td>Motivation</td>
<td>External</td>
<td>Internal</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Done without question</td>
<td>Must understand why it is important</td>
</tr>
<tr>
<td>Readiness to Learn</td>
<td>What is required</td>
<td>When content is relevant</td>
</tr>
<tr>
<td>Focus</td>
<td>Subject-centered</td>
<td>Life-centered</td>
</tr>
</tbody>
</table>

Table 5.4 Comparison of Pedagogy and Andragogy

Chapter 1 was devoted to the concepts of Mezirow and other proponents of transformative education. In essence, transformative learning can be viewed as a social andragogy as Mezirow, Cranton and others discussed and evaluated it where the learner reflected on previous knowledge and experiences as well as the world around them. However, most theorists have continued to maintain that there is a dichotomous relationship between pedagogy and andragogy. These differences truly fall into two different subsets: 1) the issue of age and 2) the issue of teacher versus learner-directed learning.
Are there truly differences between pedagogy and andragogy? Initially Knowles theorized the more mature the learner, the higher the tendency towards andragogy. But when does this actually occur? Does it occur for most between 18 and 22 when students are completing undergraduate education? Is it different for each student? Holmes and Abington-Cooper note differences between pedagogy and andragogy go beyond “age and years” (2000, p. 1) and before 1950, there was no differences in the way children and adults were taught. In 1984 even Knowles changed his mind and noted pedagogy and andragogy are actually on a continuum, and there are times when either approach may be appropriate for all ages and types of learners. Merriam (2001) noted some adults are highly dependent on teachers for structure, while some children are independent learners. Cyril Houle, Knowles mentor, disagreed and noted education is the same wherever and whenever it occurs; however, learners no matter what age should be involved in their own learning process (Merriam, 2001).

In the 21st century andragogy has truly transformed more into self-directed learning which was theorized by Houle in 1961 and Tough in 1971. Even Knowles addressed self-directed learning in addition to andragogy. This is where self-directed learning intersects with transformational learning. Transformational learning is a type of self-directed learning where critical reflection is required since this self-knowledge is key to autonomy in the learning process. In addition, as does in the basis of transformative learning in the social consciousness theory of Paolo Freire, self-directed learning also calls for social action.

Delahaye, Limerick and Hearn (1994) hypothesized learners can use pedagogical and andragogical principles at the same time and identified four stages of learning:

- Stage 1: High Pedagogy Low Andragogy
- Stage 2: High Pedagogy High Andragogy
- Stage 3: Low Pedagogy High Andragogy
- Stage 4: Low Pedagogy Low Andragogy

Stage 1 and 2 learners are pedagogy-oriented while stage 2 are both pedagogy and andragogy-oriented. Stage 3 learners have a preference for andragogy while stage 4 learners are completely self-directed. Pew (2007) noted professors usually either have pedagogical or andragogical underlying assumptions that direct their teaching, but this is problematic when a professor is pedagogical when andragogy is called for and andragogy when pedagogy is called for. Either of these situations can have a significant negative effect on student motivation. Each day the number of traditional learners who enter college directly from high schools is decreasing while the number of non-traditional students is increasing. Pew notes the question is not only about pedagogy and andragogy but instead about student motivation. Even in student-centered and andragogical practices, motivation is often still viewed as instructor-driven rather than student-driven which leads the instructor back into pedagogical practice. This is one major reason faculty in higher education cling to pedagogical models. Pew notes faculty often resort to pedagogy because that is the way it has always been done in the past. This leads to a co-dependent relationship where faculty are trying to fix students. Instead, faculty must assist students in fixing themselves. Paavola and Hakkarainen (2005) called for innovation in learning style and theories to enable learning to be viewed as knowledge creation. This is particularly true in a technological age where it is more important for students to find and use knowledge than it is to memorize and regurgitate it. Whether the underlying premise is pedagogical or andragogical, digital literacy is key to today’s educational process. Rather than creating instruction that is teacher-focused or creating assessments that are student-focused, students need to develop skill sets in digital literacy which enable them to adapt knowledge to form new concepts from both a personal and experiential sense. This in essence is heutagogy, which is considered as the next step
in educational theory and is what this author posits is the essence of education today with the advent of technological advances.

HEUTAGOGY

Heutagogy was first defined by Hase and Kenyon (2000) as a “form of self-determined learning” (p.1). Heutagogy is built upon the concepts of double-loop learning outlined by Argyris and Schon in 1974 who noted all students have mental maps and governing variables. These governing variables are dimensions the learner is trying to keep within normal limits. In single-loop learning, students choose other strategies in keeping with their own internalized goal when something goes wrong. In other words, if a student gets an incorrect answer in a math problem, he reworks the problem a different way to try to get the correct answer. The governing variables might be the time he is willing to spend, if it is acceptable to ask for help or even if it is acceptable to cheat in solving the problem. In double-loop learning the learner does not seek out different strategies to fix an error; instead, the governing variables are examined. In the case of the math problem, a better solution may be to ask someone for help in understanding and solving the problem. In essence, rather than just dealing with the symptom, double-loop learning involves getting to the root cause of a problem which usually is related to underlying norms, policies, procedures or processes. In double-loop learning the learner analyzes and evaluates the situation more holistically.

According to Hase and Kenyon (2000), heutagogy is not a linear process but rather includes “capability, action learning processes such as reflection, environmental scanning (as used in systems theory) and valuing experience and interaction with others. It goes beyond problem-solving by enabling proactivity” (p.2). In true heutagological approaches the teacher provides the material, but the students decide how to negotiate the learning process. Education becomes a learning process rather than a means to an end, and control shifts to the learning. Methods include action learning and action research which facilitate lifelong learning. Hase and Kenyon noted that technology can definitely facilitate the move to a heutagogical model.

Blaschke (2012) also noted heutagogy is a “net-centric” theory where the internet can provide the resources for the self-directed experience. She posits it will become a learning theory of distance education and views it as further point on the learning continuum after pedagogy and andragogy. In addition, she notes heutagogy is congruent with transformative education since heutagogy also requires learners to reflect on the learning process. These reflective capabilities increase with maturity in learning and cognitive processes. Whereas pedagogy is objective based and andragogy is competency-based, heutagogy is capability-based. Blaschke notes the social Web 2.0 tools allow learners to be active rather than passive, as well as engaged with others in the learning experience and further develop “Pedagogy 2.0” as noted by McLoughlin and Lee.

A heutagogical design contains the following elements:

- Learning contracts
- Flexible curriculum
- Learner-directed questions
- Flexible and negotiated assessment (Blaschke, 2012)

Course design elements can include:

- Reflective journaling
- Action Research which allows learners to experiment with real-life situations
- Formative and summative assessment
• Collaborative learning (Blaschke, 2012).

McAuliffe, Hargreaves, Winter and Chadwick (2008) proposed the following principles of heutagogy:

• Knowing how to learn is a crucial skill
• Educators focus on learning process rather than content
• Learning goes beyond specific discipline
• Learning occurs through self-chosen and self-directive action

They also noted educators tend to return to the time honored practice of pedagogy because they truly do not understand how to facilitate andragogical and heutagogical learning.

Gerstein (2013) defines Education 3.0 as a “connectivist, heutagogical approach” (p. 1). In this model, she notes schools are literally everywhere and resources are there for the taking. These can include open educational resources, MOOCs, and multimedia in addition to traditional learning resources. However, in addition, she notes there is still the need for pedagogical and andragogical approaches depending on the task at hand.

In this author’s mind, before Education 3.0 can really truly be implemented, a way must be found to tackle the overarching concept of “information discernment” which includes informational and digital literacy and how learners can categorize and appropriately use the information they have access to in order to optimize their learning experiences. Even faculty members can at times have difficulty in determining the quality and accuracy of information in this quickly changing technological world. In Education 3.0, Gerstein does not directly address this topic, but it is crucial the resources are still provided by a skilled facilitator of learning who understands information literacy and is able to guide students through self-determined learning ensuring the resources provided are accurate as well as timely.

Although this concept has not yet taken hold in mainstream education, heutagogy was explored in relation to nursing education by Bhoryrub, Hurley, Neilson, Ramsay and Smith (2010). Nurses require skills to work in a rapidly-changing health care system as patient complexity and acuities increase and technologies change. Bhoryrub et al. postulate that in order for nurses to survive in ever-changing environments, they must become life-long learners; therefore, heutagogical methods are more appropriate than pedagogical or andragogical methods in nursing education. Although heutagogy is just an emerging epistemology, it is more transformative than pedagogy or andragogy.

SUMMARY

This chapter provides a brief overview of the epistemologies that are important in curriculum and learning. Many faculty cling to pedagogy because it is what they know. However, to instill critical thinking in their students, the relevant problem-based assessments used in andragogy may be more appropriate in many cases with some students. Although pedagogy and andragogy are usually presented upon a continuum where andragogical practices are not usually used until the student is no longer an undergraduate, some students mature much quicker and may feel restrained by pedagogical practices. Consequently, some adult students are not ready for andragogical practices and still need pedagogical methods. Ultimately, what techniques are needed are based on content area and student need. However, faculty teaching a class of 20-30 students do not have the ability or the capacity to personalize curriculum for each individual student. When designing curriculum, contexts of educational theories from pedagogy through heutagogy may be needed for multiple reasons. The first is to try to meet the needs of all learners. The second is to attempt to increase the educational maturity level of those students who may
still be at the pedagogical level. It would be ideal for all students to reach the level of heutagogy, particularly in graduate education. However, at this time this vision, even with the advances of technology that enhance the journey towards heutagogy, may in fact be utopian. Faculty have to deal with student learners from the K-12 system who are used to basic pedagogy and rote learning, and it can be difficult to assist these students to the next level where the pursuit of knowledge outweighs the pursuit of completion and grades. In addition, the further governmental scrutiny of higher education institutions including student retention and graduate rates may make some faculty wary of experimenting with new methods that make students life-long learners and educated discerners and seekers of knowledge. The road from memorizing information to finding and utilizing information is a long one but well worth traveling.
References


ADDITIONAL READINGS


KEY TERMS AND DEFINITIONS

**Andragogy:** the teaching of adults

**Behaviorism:** learning epistemology where knowledge is gained through stimulus and response

**Cognitivism:** learning epistemology where facilitating learning is dependent on the understanding of the human mind

**Constructivism:** learning epistemology where knowledge is created through interaction between their experiences and ideas (or content)

**Epistemology:** a theory

**Heutagogy:** self-determined learning

**Holistic Learning:** encompassing all aspects of the learning experience; not just knowledge, but true learning and critical thinking

**Pedagogy:** the teaching of children

**Self-determined Learning:** self-regulated and self-directed learning; internal motivation to learn

**Self-directed Learning:** taking action and responsibility for one’s own learning