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The Use of Digital Technology in Extension

Kristin Woods

Auburn University, woodskl@aces.edu

James C. Langcuster

Auburn University, langcjc@aces.edu



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Abstract

This Commentary describes how andragogy has evolved with the emergence of digital technology. The information can be used by Extension educators to merge technology with traditional adult education theory. Knowles' assumptions of adult learners are discussed as they relate to an online learning environment. The role of Extension educators as facilitators of self-directed learning via the Internet is of specific interest to field specialists.

Keywords: [digital technology](#), [adult education](#), [andragogy](#), [online learning](#)

Kristin Woods

Regional Extension Agent
Food Safety Preparation and Preservation
woodskl@aces.edu

James C. Langcuster

Specialist III
Communications & Marketing
langcjc@aces.edu

Alabama Cooperative Extension System
Auburn University

Introduction

The world's largest rolling, mechanical globe planetarium was built by a man without a formal engineering degree using information he found on the Internet (Langcuster, 2012). Langcuster's report about a man named Frank Kovac who dreamed of becoming an astrophysicist and was able to accomplish this without classroom instruction is becoming more and more common. Ease of access to information provided by the Internet facilitates this phenomenon termed the "Kovac effect." The Kovac effect has major implications for Extension educators today as we delve into the arena of digital information provider.

Youth and young adults born after 1993 do not remember a time when they were not connected to the Internet. The Internet seems to infiltrate every aspect of our lives, including our work, social life, and politics. In 2010, 66% of adults in the United States had broadband Internet access at home (Smith, 2010). Many Americans believe it places nonusers at a disadvantage in the areas of job opportunities and career skills, access to health-related information, learning new things to improve and enrich life, government services, keeping up with news and information, and keeping up with what is happening in their communities (Smith, 2010). Extension is strategically situated as a potential digital content provider, as well as a potential provider of information literacy instruction (Elbert & Alston, 2005). For these reasons, it is key for Extension educators to embrace technology, not only for the sake of learners, but also for all that technology can do to enhance the Extension learning environment.

Understanding the Role of Andragogy in Online Learning

The words "andragogy" and "pedagogy" originate from Greek roots literally meaning man-leading and child-leading, respectively. The term pedagogy has evolved as a general term to mean instruction. However, there are considerable differences between the methodology that is considered appropriate for the instruction of youth and the methodology that has developed over the last half century for the instruction of adults. The idea that adults learn differently from youth has always had important implications for Extension educators (Ota, DiCarlo, Burts, Laird, & Gioe, 2006; Strong, Harder, & Carter, 2010). Strong and colleagues found that hands-on instruction consistent with andragogical methods was the most effective way to teach a group of adult beef producers (2010).

While pedagogical methods are generally teacher centered, with one-way communication from instructor to pupil, andragogical methods focus on the learner and emphasize the teacher as facilitator rather than dictator. Knowles (1970) popularized the term andragogy in his work about the assumptions of adult learners. Knowles' (1990) assumptions about adult learners can help explain the incredible success of the Internet as a mechanism of self-directed learning. Knowles

theorized that andragogy, or the idea of helping adults learn, was based on the following six assumptions: 1) the need to know, 2) the learner's self-concept, 3) the role of the learner's experience, 4) readiness to learn, 5) orientation to learning, and 6) motivation. These six assumptions apply to the way Extension educators help adults learn online today.

The Need to Know

Adults need to understand how a given skill or piece of information will apply to their lives before being willing to spend time and energy learning. This assumption of adult learners was added to the original four assumptions proposed by Knowles (1970), after Tough (1979) reported that adults are heavily concerned with determining the benefits of learning a specific task. Tough reported that many adults will even write down pros and cons to learning while making the decision to begin a learning project. Modern Extension educators have embraced this assumption and typically begin face-to-face instruction with a presentation of why the material is important enough to spend time learning. Because the Internet is nonlinear, learners viewing Extension material online can skip sections that they do not need and return later when the need arises.

The Learner's Self-Concept

This assumption is associated with stages of psychological development. According to Erikson (1978), as we progress through the psychological stages of becoming an adult, we become less dependent on others and more responsible for our own lives. By the time we reach adolescence, we are identifying who we are as individuals. Because this identity is acquired by our experiences throughout our lives, adult learners tend to resist the attempts of others to impose their views, as such is the case with the pedagogical approach to teaching.

Today's Extension educators can incorporate this assumption into their work by engaging learners in dialog and involving them in the learning process. This two-way communication makes the learner feel valued and allows his or her identity to remain intact. In recent years, technology has opened a new venue for learners to openly share ideas and opinions. For example, the online information source Wikipedia encourages participation from everyone in the development of content, and most websites now allow for users to leave comments. The Internet is a useful tool for sharing experiences and acquiring information on one's own and thus increases an individual's independence.

The Role of the Learner's Experience

Compared to children, adults come into an educational setting with a multitude of life experiences. They will have diverse experiences, some positive and some negative. For these reasons, involving adult learners in their own instruction and allowing them to share their experiences tends to improve the learning environment. As facilitators of online learning, Extension educators can provide learners with the ability to leave comments, share ideas, and learn from the experiences of others who have visited the website.

Readiness to Learn

Early work reported by Thorndike and colleagues tells us that adults are capable of learning, but factors may be involved other than this capability (Thorndike, Bregman, Tilton, & Woodyard, 1928). The researchers reported that adults must have some reason to learn a task or trait in order to embark on the learning process. Knowles elaborated on this and termed this characteristic of adult learners "Readiness to Learn."

The concept of readiness to learn is reliant on the timing of the learning opportunity to the necessity of learning a given skill. Although this assumption is largely tied to the developmental stage of the learner, Knowles suggests that the educator can influence a learner's readiness through counseling and simulation. Because of the wealth of information available online, a facilitator of online learning can easily adapt to learners needs by offering the right information at the appropriate time. Likewise, the 24/7 information access that the Internet provides facilitates the learner being able to access information when the learner is ready to learn.

Orientation to Learning

Compared to children, adults tend to be more task centered in their learning. This assumption is associated with the assumptions "need to know" and "readiness to learn" because learners will not become aware of the benefit to learning a task until they are psychologically ready for the task. By using a problem-centered course design, an instructor can successfully tap into a learner's task-centered orientation to learning. For instance, a class titled "How to Make Jam and Jelly" may not attract as much interest as one titled "How to Turn Your Summer Garden into Extra Cash." While many people don't care to know how to preserve fruits and vegetables, they may take an interest if it will help them solve the problem of not wanting to waste produce and needing a little extra spending money.

Motivation

In contrast with youth who may be motivated by external sources such as grades and rewards, adults learn best in response to internal motivators such as self-esteem and quality of life. When barriers such as cost, transportation, and low self-esteem

are removed, the internal motivation of the learner is exposed. Knowles' assumption of motivation is consistent with Houle's Typology in that adult learners are typically goal, activity, or learning oriented in their motivations (Houle, 1988). The Internet offers all types of learners opportunities to participate in social networking, obtain degrees or accreditation, and solve problems to improve quality of life.

The Value of Andragogical Methods to Extension Educators

Although the development of the term andragogy into a theory separate from pedagogy is debated by some academics, the theory provides adult educators with a set of principles by which to differentiate themselves. Adults set out on an educational session with their own life experiences, more psychological maturity compared to youth, and different motivations for learning. Taking these differences into consideration is key to the development of effective face-to-face or online curriculum. Knowles' assumptions of andragogy have had a far-reaching influence on the development of on-the-job training programs, vocational education, and our academic understanding of lifelong learning. These principles taken together with the design of technology-based learning systems have the potential to create an environment that meets the unique needs of adults and maximizes the advantages of technology.

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