

Title: Engaging Adult Learners in Extension Programs

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Abstract

Extension staff and faculty generally come to their Extension careers with technical content knowledge and lack the skills necessary for engaging the adult learner, thus a need arises for educational tools on engaging adult learners for Extension. A brief overview of Extension history followed by a literature review focused on andragogy, Extension education methods, and various educational activities and methods provides the basis of the project. The results of the literature review produced four tools adult educators can use to add variety to adult education programs and further engage adult learners. The products, quick start guides to a flipped classroom, audience response systems, structured networking, and learning by doing, are followed with a caution in tool selection. The paper is concluded by recommendations in tool usage and a holistic reflection of the writer's graduate program.

Chapter 1: Introduction

Beginnings of Extension

Formal Cooperative Extension's roots go back to the post-American Revolution time period. Shortly after the revolution, wealthy men began gathering to discuss ways to improve agriculture and called themselves agriculture societies and clubs (Cooperative Extension History, n.d.; Rasmussen, 1989). After the creation of land-grant universities and experiment stations, via the Morrill Land-Grant College Act and the Hatch Experimentation Station Act, respectively, there was still a need to reach the audience that truly needed the information being produced the most, the farmers (Rasmussen, 1989).

Years of discussion and deliberation later, Cooperative Extension was formally organized by the Smith-Lever Act in 1914 to link rural communities, Land-Grant Universities at the state level, and the federal government (Gould, Steele, & Woodrum, 2014; National Research Council, 2001; Rasmussen, 1989). Figure 1 is a visual representation of how Extension was designed with the intention of linking these three levels. Cooperative Extension's purpose both then and now is "to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics and to encourage the application of the same" (National Research Council, 2001, p. 90). The Smith-Lever Act expanded vocational, agricultural, and home demonstration programs (Gould et al., 2014) by making information from the universities and experiment stations available to rural America, particularly farmers and their families (National Research Council, 2001; Rasmussen, 1989).

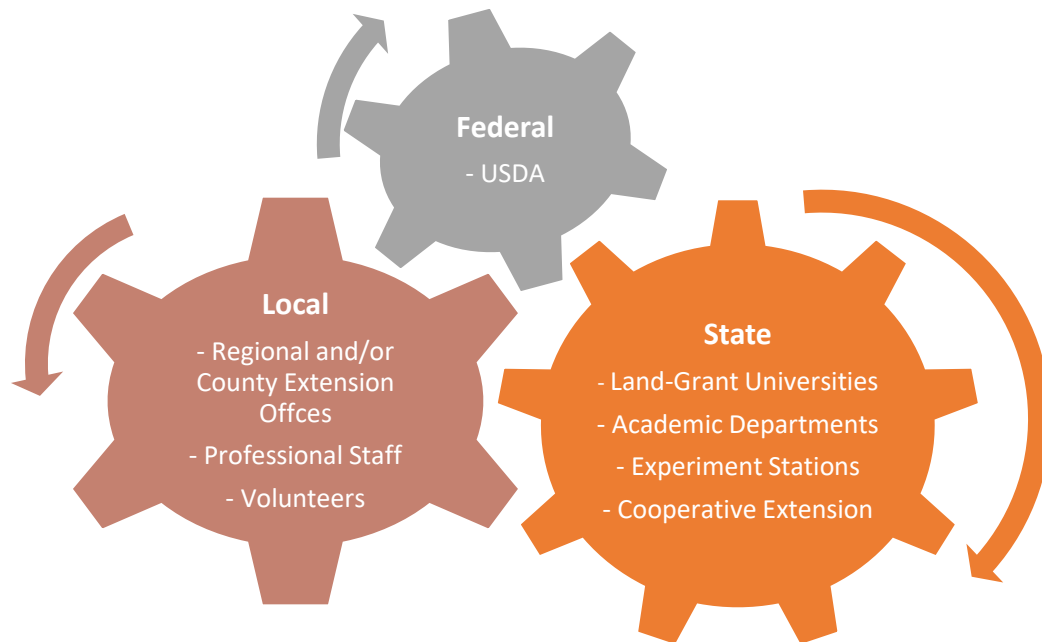


Figure 1: An illustration of Cooperative Extension. Adapted from Cooperative Extension System (n.d.). National Institute of Food and Agriculture. Retrieved from <https://nifa.usda.gov/cooperative-Extension-system>

During the creation of Extension, Congressman Asbury F. Lever noted the land-grant universities had knowledge to improve farm productivity, “...which if made available to the farmers of this country and used by them, would work a complete and absolute revolution in the social, economic, and financial condition of our rural population” (Carlson, 1970, p. 11). Since 1914, Extension has fostered a change in society by meeting the needs of individuals, households, firms, and government (Extension) by helping them “...adapt to changing technology, improve nutrition and food safety, prepare for and respond to emergencies, and protect our environment” (Cooperative Extension System, n.d., para. 2).

Meeting the Needs of America

In its early years, Extension was focused on meeting the needs of rural America by helping farmers and their families improve farming practices through local educational programs

(Board on Agriculture, 1995; Carlson, 1970). Shortly after the Smith-Lever Act was signed, Extension played a significant role in food and supplies production during World War I, World War II, and The Great Depression (Rasmussen, 1989). During this time period, food had to be rationed, so Extension played a role in teaching families how to conserve and preserve food efficiently and safety (Rasmussen, 1989). Extension home economists and 4-H staff also helped to teach women and children how to make and repair clothing, maintain household appliances, and make simple household furniture like mattresses during times of war (Rasmussen, 1989).

As the population began to relocate to rural communities and cities, Extension expanded to include urban gardening, human nutrition, human health, home economics, and community development programming (National Research Council, 2001). According to Peters (2002), Extension focused on improving crops and animals, fighting diseases and pests, setting up 4-H clubs, advancing public health and nutrition, developing cooperative marketing, and respond to emergency relief needs of both war and depression. Extension's focus and expansion into these areas set the tone for success for the first century of Cooperative Extension (Gould et al., 2014).

The Cooperative Extension System strives to improve the quality of life by bringing forth research-based education to farmers, and to those living in rural communities and urban areas (Extension, n.d.). Extension services have and continues to provide practical advice to solve problems and respond to the needs of a changing society related to production agriculture, marketing, conservation, human health, family planning, youth leadership-development and more recently- online learning environments (Cooperative Extension History, n.d.; Gould, 2014).

Purpose and Objectives

A need for project

Most professionals in Extension come to their Extension careers with technical content knowledge and little to no experience or training on how to engage adult learners (C. Heaverlo, personal communication, June 26, 2019) nor with facilitation skills (Wise, 2017). Strong, Harder, and Carter (2010) and Creswell and Martin (1993) all suggested Extension specialists need professional development in andragogy and the educational processes to properly meet the needs of adult learners. Wise and Ezell (2003) suggested Extension specialists should focus on the content delivery just as much as they focus on the content itself. Additional resources are needed to guide Extension specialists (C. Heaverlo, personal communication, June 26, 2019) and other adult education facilitators on alternative means to present information and to further engage adult learners. These tools are intended to guide a diverse level of Extension staff and faculty in adult education practices.

The purpose of this project is to provide tools to add variety in teaching methods and to further engage adult learners in adult education programs within Extension. The objectives of this project were to:

1. Gain a clearer understanding of Cooperative Extension and its role in society.
2. Clarify the similarities and differences between pedagogy and andragogy for a more holistic view of education.
3. Provide resources for adult educations in Extension to further engage adult learners.
4. Improve adult learning in Extension programs.

Definition of Terms

The following terms are used in this project:

Andragogy: Andragogy is defined as “...the art and science of helping adults learn... (Knowles et al., 2015, p. 318).

Pedagogy: Pedagogy comes from the Greek words *paid*, which means “child” and *agogus*, which means “leader of,” therefore pedagogy “means the art and science of teaching children” (Knowles, Holton, & Swanson, 2015, p .41).

Cooperative Extension: Cooperative Extension’s role is to pass on information from the Land-Grant Universities to everyday citizens and engage them “...in research, education, and other extension experiences to address current and emerging real-life challenges” (About ISU Extension and Outreach, n.d.). Also referred to in text as: Extension, Iowa State Extension and Outreach.

Chapter 2: Literature Review

Extension Teaching Methods

Within the first decade of the Smith-Lever Act, Extension had a well-developed educational philosophy and methodology for those involved in Extension programs (Rasmussen, 1989). Early Extension methodologies included demonstrations, exhibits, farm and home visits, meetings, printed material, newspapers, and magazines (Rasmussen, 1989). These methods are very similar today for Iowa State University (ISU) Extension and Outreach programs (C. Heaverlo, personal communication, June 26, 2019; D. Loy, personal communication, June 25, 2019). Dr. Carol Heaverlo said demonstrations and workshops are still very prevalent today, especially in the agriculture field (personal communication, June 26, 2019). She also mentioned it is becoming more important to diversify education experiences and integrate multiple technologies to reach a broader audience (C. Heaverlo, personal communication, June 26, 2019). ISU Extension and Outreach's first priority is to ensure the information they present is grounded in research and presented in an unbiased, practical manner (C. Heaverlo, personal communication, June 26, 2019).

Extension staff and faculty should evaluate the teaching strategies they commonly use and consider those and others that are most effective and efficient for their adult learners (Franz, Piercy, Donaldson, Westbrook, & Richard, 2010; Ota, DiCarlo, Burts, Laird, & Gioe, 2006). Wiersema (2019) warned educators to avoid the content-premise, the assumption in which anyone with expertise in a given field can teach without any prior training in educational practices. Extension can benefit from training and resources on methods and activities that are well suited for adult learners (Creswell & Martin, 1993; Johnson, Carter, Kaufman, 2008). To

understand how to engage adult learners, an understanding of andragogy and its similarities and differences from pedagogy is necessary.

Andragogy

When schools were established across the globe and early efforts were made to establish adult education programs, pedagogy was the only educational model in existence, thus until recently adults have primarily been taught as if they were children (Knowles, Holton, & Swanson, 2015). Pedagogy is mainly a teacher-directed, teacher-centered approach to education and learning; hence it assigns students to a submissive role (Knowles et al., 2015). Pedagogy puts full responsibility on the teacher to make the decisions about what will be learned, how it will be learned, when it will be learned, and determine if the students have learned it (Knowles et al., 2015).

There are many frameworks or models in existence that contribute to the understanding of adult learners, however the best known is Knowles' concept of andragogy (Merriam, Caffarella, & Baumgartner, 2007). Knowles had six assumptions made of all learners: the need to know, learner's self-concept, the role of experience, the readiness to learn, orientation to learning, and motivation to learn (Knowles et al., 2015). These assumptions of learners are understood much differently in the context of children and adults.

Children only need to know they must learn what their teacher teaches them to be promoted to the next grade level; they are not concerned with how it will apply to their lives like adults are (Knowles et al., 2015). In early educational years through high school, children and adolescents are seen as dependents of the teacher in the classroom, thus they have the self-concept of a dependent. Life experiences of children are of little value to their education, rather they depend on the teacher and other resources as a wealth of knowledge; this is the primary

reason why lectures and reading assignments are considered the backbone of pedagogical methods (Knowles et al., 2015).

Young students become ready to learn when the teacher tells them what they must learn if they wish to pass and be promoted to the next level (Knowles et al., 2015). Children's orientation to learning relies on a subject-centered approach where they organize their learning based on the subject in which it fits. Lastly, children are motivated by external factors such as grades, parents, and the teacher's approval or disapproval of promotion to the next grade.

Knowles et al. (2015) described adult learners as they relate to the six educational needs. First, adult learners must know the value of knowing what is to be learned; once value is given or shown, adult learners will be intrinsically motivated to learn and will invest energy into learning (Knowles et al., 2015). Adult learners also have a strong self-concept, meaning they are capable and self-directed learners (Knowles et al., 2015). Knowles' third description of adult learners is their wealth of prior experiences in which young learners do not have to build off of or relate to (Knowles et al., 2015). Description four, a readiness to learn to adult learners relates to their real-life situations and need for practical, applicable information (Knowles et al., 2015). Similarly, adult's orientation to learning is life-centered for their daily problems they must solve (Knowles et al., 2015). Adult learners have much motivation to learn, both externally such as a job promotion or internally like their personal self-esteem (Knowles et al., 2015).

Figure 2 helps educators conceptualize Knowles assumptions as they relate to child learning (pedagogy) and adult learning (andragogy). There is a fine line between the two frameworks and the various situations and learners for which they are appropriate. Knowles et al. (2015) suggested educators have a responsibility to check out which assumptions are realistic for a given situation. For example, from Knowles et al. (2015): "If a pedagogical assumption is

realistic for a particular learner in regard to a particular learning goal, then a pedagogical strategy is appropriate, at least as a starting point” (p. 48). This means even in adult education settings, a pedagogical strategy may be appropriate for an adult learner if they are totally new to the content, have no prior experience, do not understand the relevancy to their life or problems, do not need to accumulate new knowledge for desired performance, feel no motivation to learn, and overall take a role of dependency (Knowles et al., 2015). On the contrary, movement toward andragogical assumptions may be desirable, so child educators may do everything possible to foster independent learning (Knowles et al., 2015). Adult educators must become familiar with their audience, their relation to the content, and their goals for learning to properly plan effective learning for adults.

	Pedagogy	Andragogy
Need to know	<ul style="list-style-type: none"> • Must only know what teacher tells them if they wish to be promoted. 	<ul style="list-style-type: none"> • Must know why they should learn it before learning. • Must feel sense of immediacy.
Learners' self-concept	<ul style="list-style-type: none"> • Learner is dependent upon instructor for all learning. • Instructor assumes all responsibility for what and how content is taught and how students are evaluated. 	<ul style="list-style-type: none"> • Learner is self-directed and responsible for their own learning.
Role of experience	<ul style="list-style-type: none"> • Little experience to build off of or tap into. • Experience of instructor is most influential. 	<ul style="list-style-type: none"> • Learners bring wealth of experience and prior knowledge that diversifies a group. • Adults' experience is a rich resource for each other.
Readiness to learn	<ul style="list-style-type: none"> • Students are told what they must learn before advancing to the next level. • Biological development factors. 	<ul style="list-style-type: none"> • Changes are likely to trigger readiness to learn. • Learners able to access gaps between current state and where one wants/needs to be.
Orientation to learning	<ul style="list-style-type: none"> • Subject-centered. • Learning is a process of acquiring prescribed content. • Content is sequenced in logical manner. 	<ul style="list-style-type: none"> • Problem-centered. • Learning must be relevant to real-life tasks. • Organized around life or work situations rather than subject matter.
Motivation	<ul style="list-style-type: none"> • Primary motivated externally by grades, teacher approval, or parental pressures. 	<ul style="list-style-type: none"> • Many internal motivators like self-esteem, recognition, quality of life, job promotion.

Figure 2: Synthesis of Pedagogy vs. Andragogy. Adapted from Knowles, M. S., Holton, E. F. III., Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th edition). New York, NY: Routledge and from flordiatechnet.org as cited by <https://www.educatorstechnology.com/2013/05/awesome-chart-on-pedagogy-vs-andragogy.html>

Figure 3, adapted from Knowles et al. (2015), is a snapshot of andragogy in practice with Knowles core principles of learners in addition to the goals and purposes of learning and individual and situational differences. The three different rings represent the additional influences of teaching adults and lack of consistency amongst adult learners and various learning

situations (Knowles et al., 2015). The outer ring represents the goals and purposes that shape and mold learning experiences relative to individual, institutional, and societal growth (Knowles et al., 2015). The next innermost ring portrays the variables related to the differences in subject-matter, situations, and individual learners (Knowles et al., 2015). The innermost circle, the foundation of andragogy, consists of the core principles of adult learning (Knowles et al., 2015). Adult educators may implement this model by reading it from the inside out: start with understanding the core principles, then the particular learners, content, and situation, so on and so forth. Knowles et al. (2015) suggested a three-part process in understanding adult learners with the model:

1. The core principles alone provide a sufficient foundation for developing effective and efficient adult learning.
2. Analyze the differences in the particular learners, subject matter, and situation while anticipating changes in the core principles.
3. Identify the goals and purposes for the adult learning and explain the possible effects of them as they shape the experience. (Knowles et al., 2015).

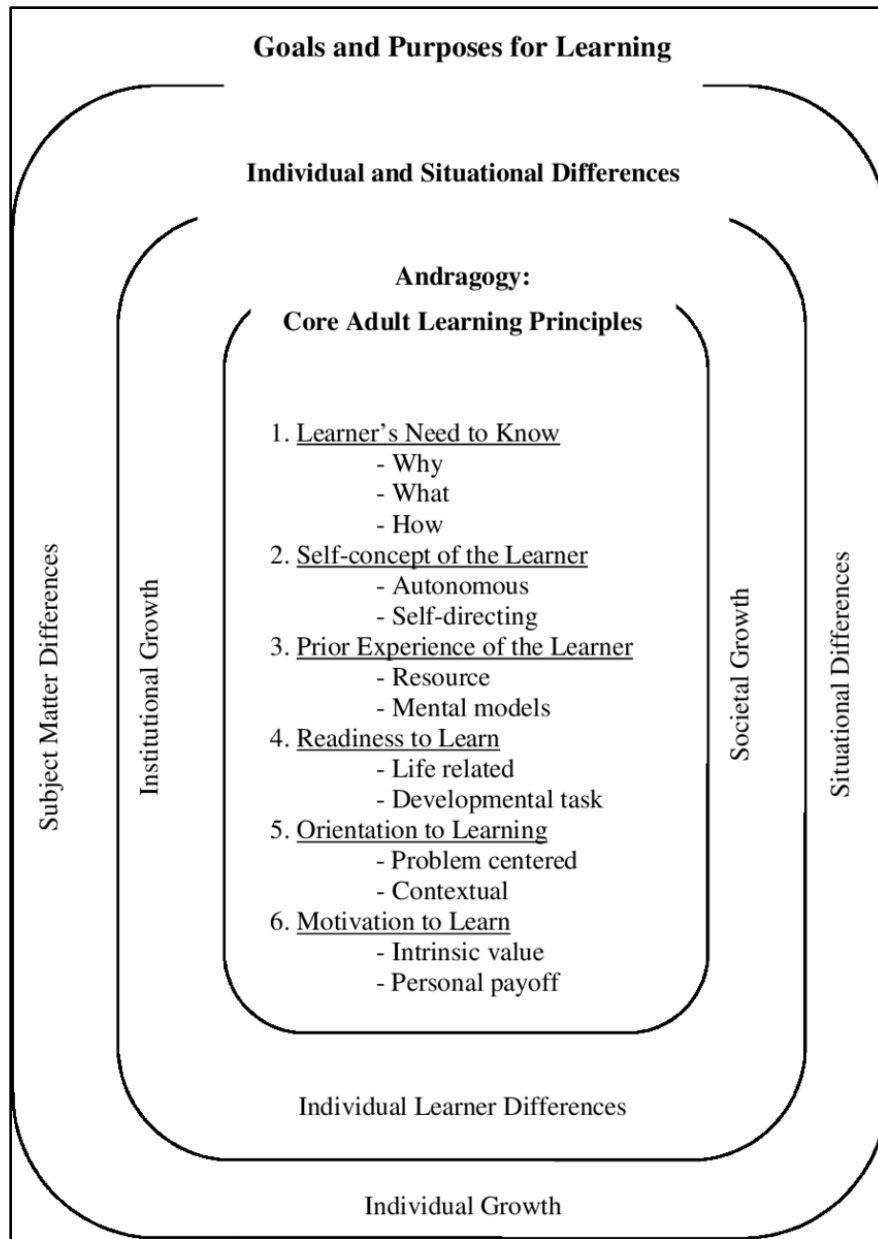


Figure 3: A snapshot of andragogy in practice. Adapted from Knowles, M. S., Holton, E. F. III., Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th edition). New York, NY: Routledge.

Adult educators, including Extension staff and faculty, should focus on the learner's experience and interests to capture their full attention (Ota et al., 2006). Adult learners typically have problem-oriented learning goals and desire to apply new knowledge to their own lives

immediately (Larkin, Weber, Galatowitsch, Gupta, & Rager, 2018). From a summary of well-known adult learning theorists, Jarvis (2004) concluded learning for adults is most effective when it is in response to a problem or need. Kistler and Briers (2003) echoed the same as they recommended adult educators, including Extension specialists, to keep Knowles' assumptions of adult learners in mind when program planning.

Introduction of Tools

Adult educators, including those in Extension programming, must have access to educational resources to better engage adult learners like using a variety of learning methods and tools while also making better use of the limited time they have (Creswell & Martin, 1993; Davis, 2006; Dollisso & Martin 1999; Franz et al., 2010; Strong et al., 2010; Trede & Whitaker, 2000). A flipped classroom design (Larkin et al., 2018), audience response systems (Gunn & Loy, 2015), structured networking (Lev, 2003), and learning by doing (Trede & Whitaker, 2000), are all tools Extension staff and faculty can integrate into their programs to add variety to their programs and to support a more active and engaging learning environment.

Tool #1: Flipped Classroom

As the name implies, a flipped classroom “flips” the learning process of a traditional lecture model of teaching (Anderson et al., 2017). In a traditional classroom, students may have reading assignments before class, class time is used by teachers sharing the information and knowledge with the students, and then the students would receive an assignment in which they would complete after class on their own time (Anderson et al., 2017). A flipped classroom design takes information or content that would normally be shared during class and sends to students in advance to review before coming to class (Anderson et al., 2017; Burns & Schroder, 2014; Franz et al., 2014, Milman, 2015). In a flipped classroom, the students do preparatory work before class, attend class for active learning activities, and then may have a reflection assignment following class (Anderson et al., 2017). See figure 4 for a summary of comparing a lecture model to a flipped classroom model of teaching.

	Lecture Model	Flipped Model
Before Class	Reading Assignment	Preparatory work (1 or more of the following examples) Recorded lectures Reading assignments Group activities Individual activities
During Class	Lecture Instructor modeling/examples	Readiness Assurance Group Test Individual Test Preparation for Active Learning Brief lecture Instructor modeling/examples Active Learning Discussion Group case studies Guided note taking Problem sets Simulation Think-pair-share
After Class	Homework	Reflection

Figure 4: Comparison of a lecture model versus a flipped classroom model of teaching. Adapted from Anderson Jr., H. G., Frazier, L., Anderson, S. L., Stanton, R., Gillette, C., Broedel-Zaugg, K., & Yingling, K. (2017). Comparison of pharmaceutical calculations learning outcomes achieved within a traditional lecture or flipped classroom andragogy. *American Journal of Pharmaceutical Education*, 81(4). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5468708/>

Flipped classrooms offer many advantages to both the facilitator and the students (Milman, 2015). Flipped classrooms make it possible to cover large amounts of material and leave "...valuable class time for more engaging (and often collaborative) activities..." (Milman, 2015, p. 9). These activities often include students inquiring about information and application exercises like projects and discussions (Burns & Schroder, 2014) and skills development, discussion, and for answering questions (Larkin et al., 2018). The majority of the material sent to the students in advance is likely to be electronic, therefore instructors have the ability to

customize and update curriculum frequently (Herreid & Schiller, 2013). Flipped classrooms allow students to move at their own pace, to an extent permissible by the facilitator, while having access to the material 24/7 (Fulton, 2012). Often times, students are able to complete homework or other applicational exercises while the instructor is present to help navigate misunderstandings (Herreid & Schiller, 2013).

Like Anderson et al. (2017) stated, flipped classrooms flip the traditional lecture model of teaching. Lecture is a transmittal approach where students' brains are compared to a container where the professor simply pours information and knowledge into the brains of students (King, 1993). While lecture is common among Extension specialists, it has been found to be the least effective and the least desired way of receiving knowledge amongst adult learners (Grudens-Schuck, Cramer, Exner, Shour, 2003), including farmers (Creswell & Martin, 1993; Johnson et al., 2008; Strong et al., 2010). The Master Beef Producer program study found lecture to be the least effective as participants described it as dull, uninteresting, or boring (Strong et al., 2010). By using a flipped classroom, facilitators can avoid lecturing by sending that information to the students before class and utilizing class time for discussion and other active learning activities.

The flipped classroom design is a highly recommended tool to help Extension facilitators to improve their programming and maximize the time they have with community stakeholders and other clientele (Arbogast, Eades, Plein, 2017; Burns & Schroder, 2014; Herreid & Schiller, 2013; Larkin et al., 2018; Strong, Rowntree, Thurlow, & Raven 2015). Community stakeholders find advantages to flipped classrooms as they are able to receive information and knowledge before the meetings thus uses the in-person interaction for active learning and interaction amongst peers (Arbogast et al., 2017). The in-person interactions allow facilitators to reinforce

the information students reviewed before class by “... leveraging their (cliente) experiences and translating learning into action” (Arbogast, 2017, Conclusions para. 1).

Flipped classrooms work well when facilitators have equipment or tools for students to learn from and use, however, they may only be available at one location (Herreid & Schiller, 2013) like computers with a specific software or a cattle handling facility. Since the students have already covered the important factual information beforehand, the meeting time can be used for the special equipment or tools (Herreid & Schiller, 2013). Arbogast et al. (2017) explained how a flipped classroom also helps to repurpose existing video documentaries that can be sent as technical content to students beforehand. Information that is procedural in nature, which is common in Extension, is a particularly good fit for a flipped classroom design as it is easy to present over video lecture or in material students can review before class (Milman, 2015). Since flipped classrooms are frontloaded a bit, others recommend to slowly nudge into using it by capturing lectures ahead of time or recycling other, previously used materials (M. Lambert, personal communication, July 2019).

There are a few concepts of flipped classrooms that relate back to andragogy and can help capitalize on the strengths of the adult learner. Larkin et al. (2018) highlighted flipped classrooms require the learner to take some responsibility for their own learning by reviewing the information on their own time (Franz et al., 2014). This relates to adult learners’ self-concept and how they are capable, self-directed, and motivated learners (Knowles et al., 2015).

Previous studies done on flipped classrooms in and outside of Extension settings have showed positive results and outcomes. While training citizen scientists on invasive species detection and response, a flipped classroom resulted in high satisfaction with the methodology while also being an effective means of teaching and learning material (Larkin et al., 2018). A

study with pharmacy students in a flipped classroom design improved their competency after 6-weeks as compared to a traditional lecture method (Anderson et al., 2017).

Tool #2: Audience Response Systems

The use of educational technology has become increasingly important as it has pushed education to new levels as it grows and changes daily (Merriam et al., 2007; The evolution of technology in the classroom, n.d.). There are numerous ways to implement technology in classrooms and programming; however, audience response systems are simple and can be very effective in Extension programs. The purpose of audience response systems is to maintain audience engagement, promote participation, reinforce new information, increase information retention, and provide feedback for presenter (Bird & McClelland, 2010; Ginter, Maring, Paleg, & Valluri, 2013; Gunn & Loy, 2015; Gustafson & Crane, 2005; Salmon & Stahl, 2005).

Both students and facilitators can find the benefits of using audience response systems and technologies (Dahya, 2016). Facilitators may use the information they receive from audience responses to make alterations to the presentation in real time or for in the future (Bird & McClelland, 2010; Gunn & Loy, 2015; Gustafson & Crane, 2005). Many times, response systems will be used throughout a presentation so facilitators and students both get immediate feedback and reinforcement (Bird & McClelland, 2010; Salmon & Stahl, 2005). Questions throughout a presentation help guide the facilitator to confirm or redirect discussions, when to elaborate, or when to continue in the presentation (Bird & McClelland, 2010). As facilitators learn more about their audiences through their responses, they are better able to tailor the following questions or examples, so they are more relevant to participants needs (Gustafson & Crane, 2005). Bird and McClelland (2010) also suggested students are less likely to fall behind or be disengaged when the facilitator periodically checks for understanding.

Audience response systems can also be used as a means for program evaluation, thus for making alterations where needed for future programs (Gunn & Loy, 2015; Gustafson & Crane, 2005; Lekies & Benett, 2011; Parmer, Parmer, & Struempfer, 2012). Many systems have a tabulation, summarization, and/or graphing functions to evaluate student understanding or for gathering and analyzing information (e.g. demographics, attitudes) from students (Bird & McClelland, 2010; Gunn & Loy, 2015; Gustafson & Crane, 2005; Parmer et al., 2012). With these additional features, facilitators are able to collect and transfer data with the click of a few buttons (Gunn & Loy, 2015; Parmer et al., 2012).

Response systems ease the challenge of response rates for demographic data, change in knowledge from a program, and for potentially sensitive data (Ginter et al., 2013; Gunn & Loy, 2015). Experienced farmers and other common participants in Extension programming are often very reserved and not comfortable with raising their hands or volunteering information publicly (Gustafson & Crane, 2005). Raising a hand in a room full of people may be considered a high-risk activity, both socially and academically (Edmonds, 2005). Response systems provide a solution by allowing anonymous answers, a less invasive method of collecting data (Ginter et al., 2013; Gunn & Loy, 2015; Gustafson & Crane, 2005).

Edmonds (2005) suggested everyone is willing to submit an answer on an anonymous device (or other tool with anonymous option). Response systems put an emphasis on students and creates a less formal, more comfortable environment as students submit an answer and see it as a part of a larger graph with other responses (Edmonds, 2005). Novel perspectives are more likely to be revealed with anonymous responses and facilitators can lead a discussion on the alternative responses whereas the dominant idea would typically lead the discussion; everyone is well represented (Gustafson & Crane, 2005; Ponessa, 1999; Salmon & Stahl, 2005).

Furthermore, Gustafson and Crane (2005) recommended using anonymous systems when discussing policy-focused information as it gives participants to safely express a minority interest.

Implementing audience response technologies correlates well with andragogy and the needs of adult learners in terms of their prior experience and orientation to learning. Adults' wealth of prior experience and their novel ideas (Ota et al., 2006) can surface through questions and can add to the discussion, whereas they would normally stay reserved and not voluntarily provide personal information or experiences (Gustafson & Crane, 2005). In turn, facilitators learn more about the audience and are better able to provide more relevant examples to the students and direct the discussion to answer problems specific to that audience. This all relates well with adult learners' orientation to learning, they want practical, applicable information to apply to their own lives and problems (Bird & McClelland, 2010; Gustafson & Crane, 2005).

Audience response systems have been used in the past by Extension specialists and found to be successful and worthwhile. Gunn and Loy (2015) employed interactive electronic response systems, or clickers, to evaluate participants knowledge gained and found them to be a valuable tool and well received by participants. Participants in a study using audience response devices by Salmon and Stahl (2005) overwhelmingly recommended the use of devices in future workshops. Ginter et al. (2013) found the anonymity of response devices increased the amount of feedback and sensitive information from low-income mothers.

Audience response systems and other alike technologies are very common in classrooms across education (Dudaite & Prakapas, 2017). Clickers, also known as the TurningPoint technology, have been employed and successful in Extension programming in the past (Gunn & Loy, 2015; Parmer et al., 2012), however facilitators may not have access to that technology or

have the funds to purchase it. There are other response systems available, many of them are free and are seamlessly integrated into presentations (Gustafson & Crane, 2005). Existing systems are updated frequently, and new technology is launched often (Dahya, 2016; Schwarz, 2018), so the following audience response tool examples in figure 5 are merely current options.

	Free (initially)	For Charge	Anonymity option	SMS Option	PowerPoint Compatible	Downloadable Results
Formative	X					X
Google Forms	X		X			X
GoSoapBox	X		X			
iClicker		X	X			X
Kahoot	X		X			
Padlet	X		X			
ParticiPoll		X	X		X	X
Poll Everywhere	X		X	X		X
Quizlet Live		X				
Sendsteps	X		X	X		X
Socrative	X		X			X
TopHat Classroom		X	X	X		X
TurningPoint		X	X		X	X
Vevox	X		X		X	X

Figure 5: Quick glance of various audience response systems available and features about them.

Like much of technology, facilitators using technology must be well organized and prepared for possible malfunctions (Brown & Stephenson, 2014). Moreover, Brown and Stephenson (2014) suggested educators take the time to prepare to utilize the technology and have a backup plan if things do not go as anticipated. Robertson (2000) encourages presenters to check out the proposed program location in advance to identify any potential technical issues and allow time to set up and test the tool. Technology may present limitations especially to those

who have not been exposed to technology before, although this is becoming less of an issue as more people have used some kind of technology before (Brown & Stephenson, 2014). Brown and Stephenson (2014) also recommended educators create a tutorial on technologies for longer courses if there is an apparent need for one.

Tool #3: Structured Networking

All too often, various meetings, conferences, and workshops with presentations or expert panels for adults "...share a common characteristic: one person at a time speaks, and everyone is expected to listen" (Lev, 2003, Introduction para. 2). Once released from the formal presentation, adults are hungry for conversation and naturally spark up conversations during breaks, meals, and receptions at programs or conferences (Lev, 2003). During presentations, Williams (n.d.) also mentioned adults are quick to observe what others are doing and sidebar conversations may erupt when they are confused or unsure. Many times, these conversations are started by a question or a pondering of how the material just presented is relevant to their own lives (Lev, 2003; Williams, n.d.). Extension specialists can capitalize on these conversations by scheduling time for structured networking during Extension programs (Lev, 2003), while also revitalizing the audience when needed (Chambers, 2002).

Structured networking can work in various fashions, but the overarching goal is to get students talking to each other much like they normally would outside the formality of the classroom. Chambers (2002) coined the term "buzz," for times when the audience needs to be energized like at the end of a morning or after lunch, the 'graveyard session'. Buzzing is when students are given the opportunity to talk to each other; "So easy. So underused. Invite participants to buzz with others next to them - about what has just been covered or done, an issue that has arisen, the agenda...The immediate wake-up often includes learning by talking"

(Chambers, 2002, p. 32). Lev (2003) discussed using “speed dating” techniques where students can be divided between experienced and inexperienced participants to then pair (or group) together to better facilitate conversations amongst all participants. Facilitators may use task-oriented techniques like asking students to find the “holes” in a concept and converse with a neighbor to spark conversation more naturally (M. Lambert, personal communication, July 2019).

Programs can begin to feel drawn out and both the facilitator and students need a break from the material. Purposefully building in time for conversations provides benefits all-around. When adult learners are given the opportunity to chat, many ideas, experiences, and thoughts come to the surface (Williams, n.d.). By learning more about their peers and their experiences, students are able to gather a lot of information that could help them later on (Williams, n.d.). The experiences and thoughts exchanged may not always be directly related to the topics being discussed, but it is important to remember students may discover ideas or expand upon thoughts they already had and make better decisions based on what they have learned (Williams, n.d.). Dollisso and Martin (1999) found adult learners are most motivated when they are given opportunities to speak and discuss, which is a strength of structured networking.

The facilitator benefits from these conversations by being involved themselves and hearing about other’s thoughts and experiences. Bandura’s Social Learning Theory relates here as he said, “Man’s capacity to learn by observation (conversation) enables him to acquire large, integrated units of behavior by example without having to build up the patterns gradually by tedious trial and error” (Bandura, 1971, p. 2). Although resources for programs may be limited, the best resource adult educators have is the learners themselves because of the experiences and knowledge they bring to the table (Ota et al., 2006).

The idea of structured networking in adult education relates to Knowles beliefs of the adult learner in relation to their experiences, self-concept, and orientation to learning. Creating networking opportunities during programming allows adult students to share and build upon their reservoir of experiences and creates rich discussions. Like already mentioned, the conversations students have may not always be on target with the topics at hand; however, adults are self-directed beings and wish to talk about how it is relevant to themselves.

Literature about structured networking provides other ideas and considerations. Strong et al., (2015) discussed the underlying concepts of a flipped classroom benefits Extension's shift toward community-centric programming, where the focus is on the clientele rather than the content. Strong et al. (2010) also recognized lecture, a common method of teaching, restricted the students' ability to socialize and program attendance increased when they moved away from lecture methodology and implanted opportunities for students to socialize.

When class time is utilized for activities other than covering information, Extension specialists "...should facilitate their constituents' nonformal educational needs and link them with peers rather than talking at them to impart knowledge" (Strong et al., 2015, Discussion and recommendations para. 2). Lev (2003) used speed mentoring with market managers where they were divided between experienced and inexperienced and then they were paired together to discuss pre-determined important issues for 10 minutes before they were instructed to switch to the next person. Lev (2003) also used a speed dating method with chefs and farmers in a situation where the chefs needed products for their menus and the farmers needed an outlet for their crops. Participants had a predetermined goal of finding a "match" and making a deal and the speed dating method of 10-minute conversations and then switching several times was an efficient way of doing so (Lev, 2003).

Tool #4: Learning by Doing – A Spectrum

Often times in education, there is a disconnect between knowing and using, therefore it is possible to obtain a tool, skill, or knowledge, but be unable to use it (Brown, Collins, Duguid, 1989). King (1993) said traditional methods of sharing information, like lecture, is not an effective way for students to learn and in turn be expected to think for themselves and solve complex problems, tasks adults undoubtedly do daily. Dewey (1916) suggested “...education is not an affair of ‘telling’ and being told, but an active and constructive process...” (p. 46).

Learning by doing is an active learning method where students are highly involved in the learning process (Briz-Ponce, Juanes-Méndez, & García-Peñalvo, 2016; Reigeluth, 2016; Shank, Berman, Macpherson, 1999). If people actively use a new tool, skill, or knowledge, they gain an implicit understanding of it and how to use it (Brown et al., 1989). Demonstrations and simulations, forms of learning by doing, promote learning of functional skills and attitudes (Gilley, 2004). Reigeluth (2016) described learning by doing as authentic activities which include:

- problem-based learning
- project-based learning
- performance-based learning

Authentic activities embed learning within an activity where social, physical, and often environmental contexts are very similar to how they would be when students use new information later (Brown et al., 1989). Learning by doing in the most realistic way possible shows learners the exhilaration of success and the frustration of failure within a safety-net (Gilley, 2004). In summary, learning by doing involves the following:

- learning skills rather than factual information

- learners are able to construct information, so it is the most relevant and meaningful to them
- learners are able to learn closer to real-life context (Shank et al., 1999).

In the Extension field, learning by doing often involves farm visits, field days, and demonstrations (Franz et al., 2010) and to an Extension specialist, they may look like a lot of stress about available funds and time (Strong et al., 2010). An Extension agent once said, “...we don’t always do what is best because of the constraints on our time” (Franz et al., 2010, Findings para. 4), and Extension programming does not come without cost (Salmon & Stahl, 2005), so Extension specialists must use their time and financial resources carefully (Strong et al., 2010). Biosecurity, impossibility, or the need for a natural disaster for complete authenticity are also limitations educators face (M. Lambert, personal communication, June 2019). Limitations of time, money, and natural disasters should not turn Extension staff and faculty away from providing learning by doing opportunities, rather they should think about what the closest to the authentic thing they can do within their limitations. Learning by doing with authentic activities makes it possible for facilitators to do the next best thing to make an activity as authentic as possible (Gilley, 2004; M. Lambert, personal communication, June 2019). As shown in figure 6, learning can be seen as a continuum of activities leading to the most authentic activity.



Figure 6: A continuum of learning methods.

By creating a variety of authentic activities, transfer of knowledge is more likely to occur (Briz-Ponce et al., 2016; Brown et al., 1989) and students are more likely to be engaged (King, 1993; Shank, 1999). For example, listening to a lecture or watching a quick demonstration on vaccines are not effective and having 50 participants practice administering subcutaneous injections to piglets may interfere with animal welfare and could be impossible, especially when they only need one injection and only 20 piglets available. Facilitators can do the next most authentic activity by giving a demonstration on a piglet, then have the participants practice on fruit. Figure 7 provides an illustration of this example in the form of a continuum.

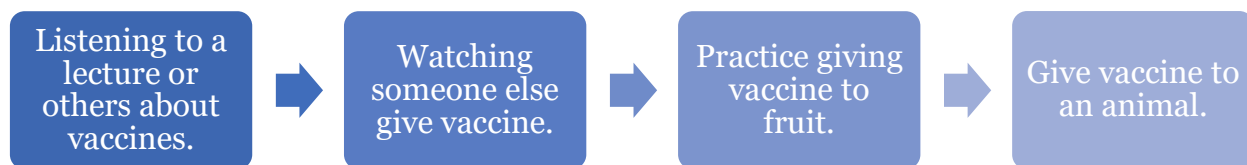


Figure 7: A continuum of authentic activities for teaching vaccine administration.

Case studies also offer an alternative when the most authentic version is not possible or feasible (Coreia, Cherrez, Chatterjee, & Saka 2014; Ota et al., 2006; Reigeluth, 2016). It is not uncommon for Extension topics to be critical or time sensitive; case studies and the alike are an alternative with a degree of realness (M. Lambert, personal communication, June 2019). Case studies are typically narratives presenting real world problems which promote active participation and innovative solutions (Ota et al., 2006). While using case studies, facilitators stimulate, guide, integrate, and summarizes discussions while students strives to find solutions to the problem at hand (Ota et al., 2006).

Field trips, or as Extension usually calls them field days, are a common and effective way of teaching adults (Comito, Haub, & Stevenson, 2017). While they may not always be possible or feasible, there are tools and other means available to show students exclusive places (P.

Donovan, personal communication, July 2019). Google Expeditions is a free tool featuring virtual reality and augmented related to “take” students places or have them do things they would not be able to do otherwise (Expeditions, n.d.). There are currently 800 Expeditions already created to choose from, however Tour Creator, also by Google, allows facilitators to create their own tours by using a street view or uploading photos (Tour Creator, n.d.). To use the virtual reality feature on Google Expeditions, students would need access to the Expeditions app and a mobile device or Chrome OS; augmented reality on requires the Expeditions app and a mobile device that supports ARCore (Android) or ARKit (iOS) (Expeditions, n.d.).

Incorporating hands-on activities is recommended for adult learners (Dollisso & Martin, 1999), moreover Trede and Whitaker (2000) found beginning farmers in Iowa prefer problem-solving, hands-on, and critical thinking processes in educational programming. Students are more likely to remember and apply information when they are actively involved in the learning process (King, 1993).

Learning by doing is not only preferred by learners, but also provides many benefits for the learner and facilitator. As an active learning method, students are more likely to be engaged and excited to learn. Hands-on learning is the most effective for farmers and they are more likely to adopting the practices taught according to Strong et al., (2010).). Gilley (2004) offers the following benefits of learning by doing in simulation scenarios:

- Places abstract ideas into concrete realities of life
- Real world situations can put self-esteem at risk, simulations preserve that
- Provide a physical and mental safety net on demanding situations
- Opportunity to apply learning to new and rewarding situations
- Gain experiences without paying the consequences they would otherwise pay
- Participants are more likely to be receptive of new ideas

- Potential upfront cost, but likely all participants can do activity rather than a few

The learning by doing methodology associates well with the strengths and needs of adult learners. Degrees of learning by doing allows students to self-direct and make choices along the way to make content more relevant and meaningful to them, a strength of adult learners (Shank et al., 1999). Learning by doing will likely build off of adults' wealth of prior experiences and knowledge (King, 1993). Adults orientation to learning is problem-focused, thus learning by doing creates a means for them to practice applying new knowledge before taking it back to their specific situations (Briz-Ponce, 2016; Brown et al., 1989; Shank et al., 1999).

Study after study concludes consumers of Extension programming prefer hands-on experiences or learning by doing (Dollisso & Martin, 1999; Downing & Finley, 2005; Franz et al., 2010; Johnson et al., 2008; Richardson, 1994; Rollins, 1993; Strong et al., 2010; Trede & Whitaker, 2000). Johnson et al. (2008) found farmers, university and government employees, and industry personnel prefer hands-on, step-by-step learning processes. Private forest landowners said they want educational programs to provide active learning methods that are practically oriented and useful (Downing & Finley, 2005). Beginning farmers in Iowa preferred hands-on learning with an emphasis on problem solving and critical thinking process (Trede & Whitaker, 2000).

A Caution in Tool Selection

Maslow (1966) said, "I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail" (p. 15-16). Experienced staff and faculty in Extension, too, commonly use a small amount of instructional methods and activities in their programs simply based on how comfortable they are (C. Heaverlo, personal communication, June 29, 2019).

Robertson (2000) suggested overuse of a particular teaching method leads to overfamiliarity for students and potential impact of lessons could be limited.

The tools provided here are a small selection of many resources available for educators to use to engage adult learners. Like all the tools in a tool shed, there is no one way to use them and a given tool has many purposes. (P. Donovan, personal communication, June 2019). Adult learners appreciate and prefer a variety of learning methods in educational programs (Coreia et al., 2014; Creswell & Martin, 1993; Dollisso & Martin, 1999; Salmon & Stahl, 2005) so it is imperative educators have multiple tools in their toolbox to use in educational programs (M. Lambert, July 2019). Extension is full of diverse facilitators and audiences, so not one tool will work for all – find what works for you (C. Heaverlo, personal communication, June 29, 2019). Trying something new in a classroom may be considered a high-risk activity as it puts the facilitator in a slightly vulnerable position. High-risks may reap high-reward, so facilitators should be willing to try something new and make it their own. Facilitators must reject functional fixedness and see the broader opportunities tools and activities can offer.

TPACK (technological pedagogical and content knowledge) provides a framework for instructional design even though it was originally intended for pedagogical settings and for lesson planning with technology (Koehler & Mishra, 2009). The framework is composed of three types of basic knowledge to properly execute a lesson: technology (educational tools and methods), pedagogy (andragogy), and content knowledge. It is important Extension staff and faculty remember the content of a lesson takes priority over utilizing a new educational tool, method, or technology

It is incorrect to assume a facilitator can choose a method of teaching before considering about the content *then* choosing a way to effectively teach it. Rather, educators must understand

the nature of their content, then find an educational method of activity as a means to *enhance* the content (trying to fit a square into a circle analogy). For example, although a facilitator may really like the idea of a flipped classroom, they should not assume they may use it for all content, especially complex information that needs clarification or an extensive explanation. On the contrary, flipped classrooms work well for procedural or a brief background knowledge that does not need a lot of explaining by a facilitator.

Chapter 3: Methods and Procedures

This project was put together by a literature review and conducting interviews. A thorough literature review was completed to gather information about the following: Extension, Extension education philosophy and methodologies, adult education, adult learner needs, Extension clientele desires, and the needs of Extension programming. The Journal of Extension was the primary source as it is most related to the needs of the project. Many searches began with adult education, Extension, adult learner preferences, and andragogy.

When looking for information about the history of Extension or theoretical framework content, date of publication was not of concern as they do not necessarily expire. For an understanding of current Extension practices and program evaluations, a time frame of the last ten years was considered. Many articles references lead me to other materials to cite.

For more current information and further understanding of Extension practices today, interviews with professionals at Iowa State University Extension and Outreach were conducted. Those interviewed included the director of Extension professional development, director of the Iowa Beef Center, and professors in the Agricultural Education and Studies department with expertise in Extension and adult education and program evaluation.

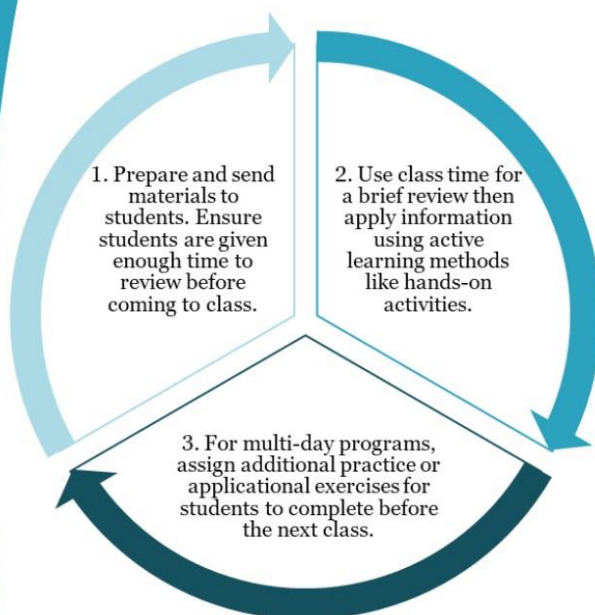
To replicate this project in the future, a thorough literature review and research about Extension practices, Extension clientele needs, and adult education is necessary.

Flipped Classroom

Quick Start Guide

A flipped classroom might be for you if...

- ⇒ You, the facilitator, do all the talking.
- ⇒ Have too much material to cover in the given time.
- ⇒ Get a lot of application like or specific questions at the end of a program.
- ⇒ Run out time during application activities.
- ⇒ Lecture frequently about factual or procedural knowledge.



What: Flipped classrooms flip the learning process of a traditional lecture model. Facilitators send materials to students before class and face-to-face time is utilized for active learning like discussions, problem sets, or demonstrations.

More information:

[Are you ready to flip?](#)

[Upside down and inside out](#)

[Repurposing video documentaries](#)

[Flipping the classroom](#)

Sources: Arbogast, D., Eades, D., & Plein, L. (2017). Repurposing video documentaries as features of a flipped-classroom approach to community-oriented development. *Journal of Extension*, 55(5). Retrieved from <https://www.joe.org/joe/2017october/tw4.php>; Burns, C., & Schroder, M. (2014). Are you ready to flip? A new approach to staff development. *Journal of Extension*, 52(5). Retrieved from <https://joe.org/joe/2014october/tw4.php>; Laikin, D. J., Weber, M. M., Galatowitsch, S. M., Gupta, A. S., & Rager, A. (2018). Flipping the classroom to train citizen scientists in invasive species detection and response. *Journal of Extension*, 56(5). Retrieved from <https://joe.org/joe/2018september/tt1.php>

Audience Response Systems

Quick Start Guide

Audience response systems might be for you if...

- ⇒ Discuss controversial or sensitive information.
- ⇒ Struggle with response rate on program evaluation.
- ⇒ Lack audience participation during program.

What: Utilizes technology to ask audience questions during program about demographics, ideas, or knowledge gained. ARS maintains audience engagement, reinforces new information, and a means of receiving audience feedback.

	Free (initially)	For Charge	Anonymity option	SMS Option	PowerPoint Compatible	Downloadable Results
Formative	X					X
Google Forms	X		X			X
GoSoapBox	X		X			
iClicker		X	X			X
Kahoot	X		X			
Padlet	X		X			
Participoll		X	X		X	X
Poll Everywhere	X		X	X		X
Quizlet Live		X				
Sendsteps	X		X	X		X
Socrative	X		X			X
TopHat Classroom		X	X	X		X
TurningPoint		X	X		X	X
Vevox	X		X		X	X

Benefits:

- ◇ Protects anonymity
- ◇ Encourages audience participation
- ◇ Reveals novel ideas
- ◇ Allows facilitator to elaborate on confusing topics
- ◇ Guides discussion
- ◇ Multiple tools to choose from

More information:

[Have you used clickers...?](#)

[Use of interactive electronic...](#)

[TurningPoint student response...](#)

Sources: Bird, C., & McClelland, J. (2010). Have you used clickers in programming? Journal of Extension, 48(5). Retrieved from <http://www.joe.org/joe/2010october/tt9.php>; Gunn, P., & Loy, D. (2015). Use of interactive electronic audience response tools (clickers) to evaluate knowledge gained in extension programming. Journal of Extension, 53(6). Retrieved from <https://www.joe.org/joe/2015december/tt5.php>; Edmonds, V. (2005). TurningPoint student response system. [On-line]. Retrieved from <https://campustechnology.com/articles/2004/08/turningpoint-student-response-system.aspx>

Structured Networking

Quick Start Guide



What: Scheduled time during program for participants to converse amongst one another about the agenda, what had just been covered, or a newly arisen issue. Capitalizes on conversations that typically take place during breaks and the wealth of experiences adult learners come to the program with.

Structured networking might be for you if...

- ⇒ Are teaching about cutting edge information.
- ⇒ Discuss controversial or challenging topics.
- ⇒ Dread the post-lunch session.
- ⇒ Commonly have many specific questions following the program.

More information:

[Using speed dating techniques...](#)

[Using social learning theory...](#)

Sources: Lev, L. (2003). Using Speed Dating Techniques to enliven and improve conferences and workshops. Journal of Extension, 41(2). Retrieved from <https://www.joe.org/joe/2003april/tt4.php>; Williams, K. (Sept. 2017). Using social learning theory to engage adults through extension education. Teaching Tips/Notes, NACTA. Retrieved from https://www.nactateachers.org/images/TeachingTips/Using_Social_Learning_Theory_to_Engage_Adults_through_Extension_Education.pdf

Learning by Doing

Quick Start Guide

Learning by doing might be for you if...

- ⇒ If content is application heavy.
- ⇒ Students usually understand the concept but struggle with information transfer
- ⇒ Equipment for students to practice on is only available at one location.

What: Students are actively involved in the learning process by physically doing the most authentic version of the task. Learning by doing connects students to real-world issues, problems, and tasks using hands-on activities, case studies, field days, simulations, virtual reality, and more.

More information:

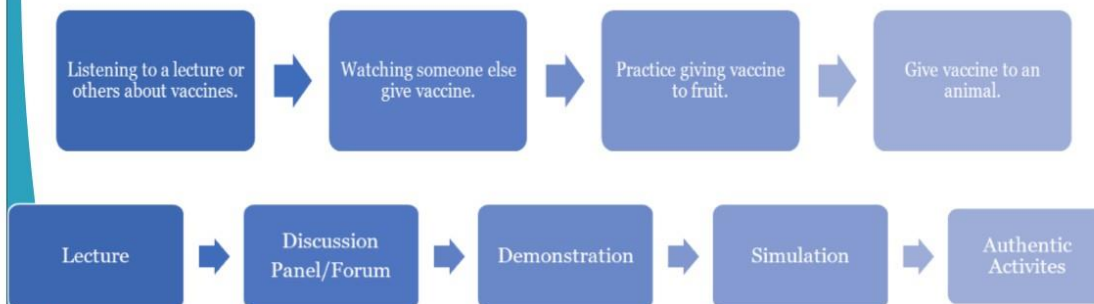
[Situated cognition...](#)

[TourCreator](#)

[Expeditions](#)

[Training...needs of adults...](#)

A Continuum of Learning by Doing with Authentic Tasks



Sources: Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42. doi:10.2307/1176008; Ota, C., DiCarlo, C. F., Burts, D. C., Laird, R., & Goe, C. (2006). Training and the needs of adult learners. *Journal of Extension*, 44(6). Retrieved from <https://www.joe.org/joe/2006december/tt5.php>; Dollisso, A. D., & Martin, R. A. (1999). Perceptions regarding adult learners motivation to participate in educational programs. *Journal of Agricultural Education*, 40(4), 38-46. Doi: 10.5032/jae.1999.04038

Chapter 5: Reflection and Vision

Recommendations

The tools provided are intended for adult education Extension programs, although they can be seamlessly implemented into other educational programs successfully. It is recommended Extension staff and faculty consider using these tools for their programs to add variety and higher levels of participant engagement. Those who use the tools will become familiar with the general concept, the procedure of using (if applicable), why they should use them, and any other special considerations that should be made with each of them. Additional information for each tool is provided for those who wish to learn more about them.

These tools will be deployed through the Iowa State University Digital Repository and will also be sent to the professional development director of Iowa State University Extension and Outreach and also shared with the IAAE (Iowa Association of Agriculture Educators) to decide how to further deploy the tools.

It is important to know the previously mentioned tools and activities are just a very small sample of an unending list of other educational tools and activities to implement in adult education. Facilitators of adult education, let alone any education, must know to use what works for them and for the audience they are working with. Educators are most effective and efficient when they know their audience and what their needs/desires are. Audiences are the point source of information about what they enjoy or need from educational programs, so get feedback from them and make modifications when and where necessary. Although the tool provides some suggestions on when to use each method, it is important to note it all depends on the audience wants and needs.

Currently there are not many other tools like this to guide Extension staff and faculty through andragogy and alternative methods of teaching. This project may be repeated with other educational tools at any time to add to Extension resources. More specifically, this project may be revisited every five to ten years to remain relevant with Extension goals and adult learners' needs. Much like new technology being released frequently, new activities and methods are brought about that may be affective for adult learners in Extension settings.

Reflection

Throughout the construction of my creative component, I have learned a great deal about not only myself, but also adult education within Extension. Doing my creative component in the area of adult education was a learning curve for me as I had not taken an adult learning methods course, but I feel as if I am better off being mostly self-taught. Doing the research on my own for a project with no rubric gave me the power of choice to learn what I wanted to know more about. Being self-taught also takes a lot of motivation and like Knowles assumptions of adult learners, my motivation came from wanting to learn for myself for a future career and having a more holistic view of education in terms of pedagogical and andragogical frameworks. Creating something new required me to be fully immersed into all the things about it, thus I am more likely to remember these things down the road than if I were to be sitting in a lecture. Creating something new on my own, with the help of great mentors, has required me to be a problem solver and critical thinker which is something not always required by a college level course.

Writing was something I had never done a lot of, nor put my heart and soul into until this project which also proved to be a big, but good learning curve. Dr. Lambert's advice and encouragement along the way was everything I needed to hear to get words on paper and things will fall into place later, something that was really hard for me as a perfectionist to understand.

Looking back, my college career has been nothing short of a whirlwind. From a school in Oklahoma, a transition to Iowa State in animal science, an undergraduate degree in three years, a graduate degree in education, a graduate teaching assistant (TA) assistantship, teacher's certification option, but a project in adult education – all in a total of four and a half years, there is nothing I would change; everything has truly fallen into place to make for a college career worthwhile. From a young age, I always knew I wanted to have a career in the field of agriculture and in my high school years, I found a passion for teaching people the things I was excited about which rarely deviated from agriculture. My college career has met in the middle and I feel prepared to move forward to a successful career where agriculture and education meet.

My graduate program has prepared me for a professional career by giving me the tools and practice to be successful in teaching others and teaching myself. Finishing a four-year degree in three years honed on time management and prioritizing skills. Switching gears from animal science to education in graduate school pushed me out of my comfort zone and challenged me to dive in without hesitation, which is to be expected in a professional career. My graduate program is far from standard procedure; however, because of my TA assistantship with Science with Practice (SWP), teacher's certification, and project in adult education, I feel like I have a very well-rounded master's degree, one very diverse from the others. A college career, and life in general, goes too fast to not make last minute decisions; I encourage people to challenge themselves and make the best out of the opportunities presented to them.

If I could do it over again

If I were to redo the project, I would do my own survey research to find out how Extension staff and faculty are currently teaching adults and on the flip side, the desires and needs of adult learners in Extension educational programs. Program evaluations would also be an

efficient way of gaining a thorough understanding what Extension needs. By doing this research, I would be able to make more specific recommendations and create a tool very specific for those subjects of the study. This would also allow the project to be more specific to a geographical area and the programs that may be hosted most frequently there. The more specific and relevant the tool is to the programs that will use it, the more effective and efficient it will be.

Summary

In summary, those who work in adult education programs in Extension typically have technical content focused knowledge rather than education knowledge. The tools provided can help Extension faculty and staff, and other educators, as they look for ways to diversity their teaching methods and try new engaging activities. As a precaution, not one size fits all and there is no one use for a given tool. Be willing to try new things and use what works best for you and your audiences.

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