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Andragogy for All? A Look at Arkansas Community College Students' Preferences for Andragogical Assumptions

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Andragogy for All? A Look at Arkansas Community College Students' Preferences for Andragogical Assumptions

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by

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Abstract

Community colleges are tasked with juggling multiple missions. They provide open access to education for adults in their community, work with industry partners to educate the local workforce, and provide relevant programming to the communities they serve. When compared with students at four-year institutions, community college students are older, more ethnically and racially diverse, come from lower socioeconomic statuses, and less academically prepared.

Like other community colleges across the country, one of the primary goals of Arkansas community colleges is to help their students succeed. Unfortunately, the state has historically performed poorly in regard to educational outcomes. To get the state back on track, Governor Hutchison enacted a law that moved institutions of higher education to a performance-based model. While student success has always been a concern, beginning in the 2018 academic year, it also became a measure that directly impacts Arkansas higher education institutions funding. Now, more than ever, it is essential for these institutions to understand what is needed to help students succeed.

Matching teaching strategies to student learning preferences is one way to ensure student success. According to the Organization for Economic Cooperation and Development (OECD), "Learning strategies may affect individuals' ability to learn" (2011b, p.5), and research has shown that accounting for learners' preferences affects learning performance (Jones et al., 2019; Onder & Silay, 2016; Roessger, 2013). With a better understanding of students' learning preferences, educators and administrators can make more informed decisions on what learning strategies and approaches to use.

Andragogy has been a widely accepted model for teaching adult learners, though many criticisms exist surrounding the learning method's relevance. Some argue that andragogical assumptions fail to consider issues of gender (Sandlin, 2005), race/ethnicity (Duff, 2019), other social contexts like socioeconomic status and culture (Hansman & Mott, 2010; Lee, 2003; Sandlin, 2005). Others cite a lack of empirical evidence as the reason for their criticism (Merriam et al., 2007; Taylor & Kroth, 2009). A recent study conducted by Roessger et al. (2020) gives credence to all of these concerns, as they found that on an international level, preference for andragogical assumptions varies based on age, gender, education level, occupational skill level, culture, country of origin, and ability of the country to meet basic needs.

This study used multiple linear regression to investigate the relationship between student preferences for andragogical assumptions and their age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and culture. It also investigated whether age influences the relationship between gender and preference for andragogical assumptions. Significant relationships were found between preference and gender and preference and race/ethnicity. No significant relationship was found among the remaining variables. Even with the significant findings, it appears preference for andragogical assumptions among Arkansas community college students is high. As such, educators at these institutions should consider employing andragogical methods in their classrooms. Future research should continue to focus on how individual student characteristics relate to learning preferences.

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Dedication

To my husband, Jeff: I may have written this study, but you were the one who truly put in the work. This accomplishment is just as much yours. Thank you for all the sacrifices you make for our family, for exemplifying true servant leadership, and for showing our son what it means to be a wonderful husband and an amazing dad.

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Chapter 1: Introduction

Thomas Jefferson, the principal author of the Declaration of Independence, is credited with penning these lines, “We hold these truths to be self-evident, that all men are created equal…” (US, 1776). Yet he is also credited with saying, “There is nothing more unequal than the equal treatment of unequal people” (Monticello.org, 2020). On the surface, these seem to be two contradictory ideas: all people are created equal, but the equal treatment of unequal people is wrong. All human life is equally valuable and, as such, each person should be given equal opportunities for life, liberty, and the pursuit of happiness. However, each person is also individually unique, and the journey to fulfillment is likely to look very different for each one. When a person’s journey to fulfillment leads them to college, it is the college’s mission to provide them with the skills, knowledge, and support to be successful in their endeavors.

The challenge for those institutions of higher learning then becomes how best to help each student, each one bringing differing experiences, resources, motivations for enrolling, and levels of education. This is complicated when widely adopted adult learning models such as andragogy propose guiding assumptions that apply to *all* adult learners. Should practitioners adopt these models as guidelines for practice, or should they be more sensitive to the context of learning and the particular needs of each student? This chapter outlines how the assumptions of andragogy have become an accepted model of teaching and learning for adult students and explains why some researchers criticize those assumptions. Among the criticisms is an argument that andragogy is not a good fit for diverse populations—populations often seen in community colleges. An overview of community colleges is presented, as well as the state of education and community colleges in Arkansas, the setting of this study. Definitions relevant to the proposed

study are given, and the questions guiding the study are presented. Finally, the proposed study's scope and limitations will be discussed.

Background of Study

Adult education has existed for centuries. Knowles points out that many of the earliest well-known teachers and philosophers, Aristotle, Confucius, Jesus, Plato, Socrates, etc., had adults as their pupils. However, when monastic schools began appearing in the seventh century, the focus of education shifted to children. According to Knowles (1980), it was not until the 1920s that adult education appeared as an organized system, and it was two decades later that studies related to adult learning began to emerge. Knowles published his first book in 1950 in which he listed the common principles he found when analyzing the studies and reports of other scholars. Eventually, Knowles (1980, 1984) synthesized the findings from the theories and studies he researched and educed six assumptions about adult learning:

- Need to know: Learners want to know the relevance of what they are learning.
- Self-concept: Learners are independent individuals who prefer to be self-directed.
- Foundational experiences: Learners have accumulated a vast foundation of experiences and use those experiences to make connections to what is being taught.
- Readiness to learn: Learners will be ready to learn when they recognize the immediate benefits of such learning.
- Learning orientation: Learners prefer a problem-centered approach to learning, desiring content that has real-world and direct application to their lives.
- Motivation to learn: Learners are more motivated by internal factors than external ones.

For almost half a century, these six assumptions—which now make up the concepts of andragogy – have been used as a guide for those who educate adult learners. They are deeply rooted in American professional literature relating to adult education (Henschke, 2011; Merriam & Bierema, 2013).

Instructors who subscribe to the ideas of andragogy consider themselves facilitators instead of evaluators and prefer instructional strategies like case studies and simulations as opposed to lectures (Culatta, 2018). This means that teachers employing andragogical assumptions will initiate discussion and then allow students to share their experiences, learning from one another. They will answer questions with questions, allowing students to draw on what they know to lead themselves to the right answer. They may even allow students to create customized learning plans, allowing them options for the types of assignments they will complete over the span of the course (Allen & Withey, 2017).

Despite its long history and deep roots, andragogy is not without its critics (Hansman & Mott, 2010; Lee, 2003; Merriam et al., 2007; Taylor & Kroth, 2009). Some criticize Knowles for drawing his assumptions based on a population too much like himself: educated, white, upper middle-class males (Henschke, 2011; Lee, 2003), while others voice concern that it lacks empirical evidence to support it (Merriam et al., 2007; Taylor & Kroth, 2009). In creating his assumptions, Knowles ignored race (Duff, 2019), gender (Sandlin, 2005), and other social contexts such as socioeconomic status and culture (Hansman & Mott, 2010; Lee, 2003; Sandlin, 2005). Another variable not considered is a student's level of college readiness. Knowles believed his set of assumptions most benefited mature learners, so are those who lack the ability to be successful in college level courses expected to have the same preferences for andragogical assumptions as their college-ready peers? Are those reaching the end of their community college

journey expected to have the same preference as those who are just beginning? What about the types of programs students are enrolled in? Do students pursuing workforce training have the same preference for andragogical assumptions as students enrolled in general education courses? It is hard to say with certainty without empirical data, but the concept of college readiness brings the definition of maturation into question.

While empirical data relating to the relevance of andragogy has been difficult to come by in years past, the Program for the International Assessment of Adult Competencies (PIAAC) presents a potentially groundbreaking solution. PIAAC is a large-scale, international survey that assesses adults' cognitive and workplace skills (PIAAC Gateway, 2020). The PIAAC background questionnaire contains six questions known as the Readiness to Learn (RtL) scale. This scale is comprised of two validated constructs, motivation-to-learn and elaboration (Gorges et al., 2017) that closely parallel the assumptions of andragogy (Roessger et al., 2020). For their study, Roessger et al. (2020) tested the two constructs of the RtL scale against the six assumptions of andragogy. They surveyed 300 adults in the United States the six questions from the PIAAC RtL scale and six additional questions directly relating to the each andragogical assumption. Their results indicated that the motivation to learn scale was a reliable instrument for measuring a person's preference for the andragogical assumptions of motivation to learn, learning orientation, and self-concept. Similarly, they found the elaboration scale to be a reliable construct for measuring a person's preferences for the andragogical assumptions of need to know, readiness to learn, and foundational experiences. In other words, Roessger et al. (2020) were able to validate the PIAAC RtL scale as an acceptable way to measure preference for andragogical assumptions.

Once the Readiness to Learn scale was validated as a means to measure preference for andragogical assumptions, Roessger et al. (2020) tested the data collected by PIAAC to see if preference for andragogical assumptions varied based on age, gender, education level, occupational skill level, culture, country of origin, and ability of the country to meet basic needs. On all accounts, their study found statistically significant differences in PIAAC participants' preferences for andragogical assumptions. They found that preferences for andragogical assumptions were higher for younger adults, males, those with higher education and occupational skill levels, those from western countries, and those from countries which can better meet the basic needs of its citizens. These results seem to validate the concerns of those who worry that andragogy is not, in fact, a one-size-fits-all model. Still, the results of the Roessger el al. (2020) study are based on a global survey involving 32 countries. It is difficult to infer what these results would mean on a local scale, particularly for community college learners. Do community college learners have unique preferences for how they learn?

Community college students do not generally match the population Knowles studied. On average, they are older, more ethnically and racially diverse, come from lower socioeconomic backgrounds, are more likely to be first generation and less academically prepared students than those at four-year institutions (Herideen, 1998). According to the National Center for Education Statistics (NCES), in 2015, only 19 percent of students enrolled at a public four-year institution were over the age of 24, compared to 35 percent at public two-year institutions. For the 2015-2016 academic year, only 43 percent of full-time students at public four-year institutions received a Pell Grant, compared to 50 percent of full-time students at public two-year institutions (National Center for Education Statistics, 2017). In addition to the age and income disparities, approximately 68 percent of incoming students attending public 2-year institutions each year

must take at least one remedial course before they can be considered college-ready, compared to 39.6 percent of students attending public 4-year institutions (National Center for Education Statistics, 2016). Another distinction of community college students is that they are more likely to have shorter-term, workforce-oriented educational goals than those attending other institutions (National Center for Education, 2018). According to the National Center for Education (2018), during the 2011-12 academic year, 2-year public institution served the majority (65%) of students seeking a subbaccalaureate workforce degree, while public 4-year institutions served less than eight percent of that population.

Another difference that community colleges have from their four-year counterparts is their reliance on part-time faculty. According to the Delta Cost Project at American Institutes for Research (2016), part-time faculty constitute approximately 69% of public community college faculty, compared to only 26% of faculty for public research institutions. This means that while community college instructors may be experts in their fields, they are not necessarily experts at teaching. Making matters worse, community colleges often have limited access to orientation and professional development for these instructors, and they are often excluded from campus discussions on topics related to student learning (Center for Community College Student Engagement, 2014). If they seek sources on their own to improve their teaching strategies, many results will likely point them to andragogy. A cursory Google search of "teaching adults" yielded 683,000,000 results. On the first page of results, seven of the ten websites discussed specifically reference andragogy. The others mentioned some of its assumptions without calling it by name. *Handbook Two: Advanced Teaching Strategies for Adjunct and Part-Time Faculty* is in its fourth edition and boasts of having over 45,000 copies sold and of being used in over 1,000 colleges and universities in the United States (Amazon.com, 2020). The very first chapter is "Utilizing the

Techniques of Andragogy" (Greive, 2016). When part-time faculty members seek out adult learning strategies, andragogy is likely what they will find.

Despite the differences between two- and four-year institutions relating to student body and faculty makeup, few differences exist in the policies and practices that those institutions employ. Universities and community colleges have been identified as members of the same discourse community – higher education. In the higher education discourse community, the university "defines the accepted conventions for academe" (Kelly-Kleese, 2004, p. 56). As such, community colleges often adopt the definitions and modes of discourse of universities as their own, even when the terminology does not accurately reflect their institutions (Kelly-Kleese, 2004). For example, the term nontraditional student is used in both universities and community colleges, even though "nontraditional" students are the students who typically hold the majority within community college student bodies.

The assumptions of andragogy are another convention community colleges accept from universities. Community college administrators likely feel andragogical assumptions should be applied because higher ed says so. Sogunro (2015) avows, "quality instruction embodies strong andragogical skills" (p. 29). Mews (2020) asserts that andragogical assumptions should not be confined to instructional techniques, but should be extended for use in student services, as well. When asked about best practices at the 2014 Community College Futures Assembly, a focus group of community college administrators agreed that to compete with other educational institutions, community colleges needed to adopt a student-centered model that allows students to decide, not just what to learn, but how to learn and why they want to learn it (Wilson et al., 2015). There are at least three andragogical assumptions included in that best practice model: self-concept, need to know, and readiness to learn. Wilson et al. (2015) explains that a student-

centered model empowers students, providing motivation for them to persist (which adds a fourth assumption to this best practice model).

However, the problem for community colleges is that most research is conducted and published by universities, allowing them to write the narrative for all of higher education (Kelly-Kleese, 2004). Ideas relating to student success, completion, and evaluation methods are all dictated by the universities causing "unrealistic performance standards, hindering both practice and policy at community colleges" (Ocean et al, 2018, p. 458). Community colleges across the country face this struggle, with higher impacts in some states than others. In Arkansas especially, it has never been more critical to adopt effective approaches to working with adult learners.

Arkansas continually underperforms on educational outcomes compared to other states. According to the American Community Survey, Arkansas has ranked in the bottom ten states since 2006 for the percentage of people 25 years and older who have attained a high school diploma or equivalent. Considering the percentage of people 25 years and older who have attained a bachelor's degree, Arkansas sinks into the bottom three from 2006-2017 (United States Census Bureau, 2019b). WalletHub, a website focused on helping consumers make wise financial decisions, performed a 20-metric study of all 50 states examining educational attainment, university quality, and gender gaps in educational attainment and ranked Arkansas as one of the least educated states (#47) in the nation (McCann, 2019). In 2009, Arkansas legislation was passed which required Arkansas Department of Higher Education to collect information necessary to report on postsecondary remediation (Arkansas 87th General Assembly, 2009). Based on that annual report, between Fall 2013 and Fall 2017, remediation rates for first-time entering students at Arkansas 2-year institutions averaged 53% (Arkansas Department of

Higher Education, 2018a), which means more than half of the students entering community colleges in Arkansas were not academically prepared to succeed in college.

In general, Arkansas community college students are academically and demographically much like those on the national scale; however, specific student body demographics vary greatly from institution to institution and region to region. Take, for example, the following four institutions from across the state: Arkansas State University Mid-South (ASUMS), Northwest Arkansas Community College (NWACC), University of Arkansas Community College at Rich Mountain (UACCRM), and University of Arkansas Pulaski Technical College (UAPTC). The table below provides data from the National Center for Education Statistics (2020a) and displays those four institutions' demographics and academic preparedness.

Table 1
Fall 2018 Enrollment Demographics

Institution	% Pell Recipients	% Female	% Minority	% Non-Traditional	# First-Time Students in Remedial Math*	Total Enrollment
ASUMS	79	63	66	25	479	1423
NWACC	45	57	34	25	2507	7979
UACCRM	84	67	13	38	138	815
UAPTC	67	63	45	44	2414	5450

Note: *Remedial data is from Academic Year 2018-19

Notice the variation in demographics across just these four institutions. The low number of nontraditional students may seem surprising at first glance; however, all 22 community colleges in the State allow high school students to concurrently enroll, and 17 of the 22 community colleges operate secondary technical centers. Concurrent enrollment skews the data related to age. Pell recipients make up 84% of UACCRM, but only 45% of students at NWACC. Minority students make up 66% of the student body at ASUMS, but only 13% of UACCRM. When looking at the number of first-time students enrolled in remedial math for the 2018-19 academic

year as a percentage of the total Fall 2018 enrollment, only 18% of UACCRM first-year students were enrolled in remedial math, compared to 44% at UAPTC. How might these unique characteristics for each institution relate to students' preferences for andragogical assumptions?

Need and Purpose

This study will help answer some of these unknowns by examining student preferences for andragogical assumptions across the 22 community colleges in the state of Arkansas. Specifically, it will measure how age, race, gender, socioeconomic status, college readiness, class standing, program type, and/or culture relate to the preference for andragogical assumptions of adult learners enrolled. All postsecondary students (not concurrently enrolled in high school) across all 22 community colleges in Arkansas will be emailed a survey which will capture demographic information and students' responses to the Readiness to Learn scale. Those results will then be analyzed using multiple linear regression to determine if a relationship exists between the various demographic variables and the students' preference for andragogical assumptions.

This study helps fill a gap repeatedly cited within the literature for greater empirical support regarding the preference of adult learners for andragogical learning methods (Merriam & Bierema, 2014; Merriam et al., 2007; Taylor & Kroth, 2009). The information gathered in this study will be particularly useful to community college administrators and educators who serve populations who are generally much more diverse than the population from which Knowles drew his conclusions.

This empirical data is especially timely for Arkansas community colleges since the state has moved to performance-based funding. On November 3, 2017, Governor Asa Hutchison explained in a weekly address that the Arkansas legislature passed Act 148 which stated that

public institutions of higher education in Arkansas would no longer be funded based on enrollment but instead on productivity. The governor signed that bill in February 2017 with the new funding formula taking effect on July 1, 2018, the beginning of fiscal year 2019 (Hutchinson, 2017). As of May 2018, the metrics for the productivity model include the number of:

- Credentials awarded
- Students who obtain 15, 30, and 45 credit hours
- Students who transfer to a 4-year institution with and Associate degree or at least 30 Arkansas Course Transfer System (ACTS) course hours
- Students who complete math, English, and reading gateway courses with a C or better

The metrics also include (or exclude) points based on students' credits at completion and time-to-degree, and the institution's core expense ratio and faculty-to-administration salary ratio. An adjustment of points based on diseconomies of scale is also included as part of the scoring metrics. Scores are calculated using a three-year rolling average (Arkansas Department of Higher Education, 2018c). Unfortunately, since implemented, 14 of the 22 community colleges have lost funding each year under the new performance-based model (Arkansas Department of Higher Education, 2018b, 2019b, & 2020). What can these community colleges do to move the needle?

The proposed study will allow administrators and educators to gauge if a relationship exists between certain demographic variables and students' preferences for the assumptions of andragogy. According to the Organization for Economic Cooperation and Development (OECD), "Learning strategies may affect individuals' ability to learn" (2011b, p.5), and research has shown that accounting for learners' preferences affects learning performance (Jones et al.,

2019; Onder & Silay, 2016; Roessger, 2013). With a better understanding of students' learning preferences, educators and administrators can make more informed decisions on what learning strategies and approaches to use. If the preference for andragogical assumptions is lower among marginalized students, then administrators and educators will need to examine their current policies and practices in relation to their student body to see if those policies and practices support or suppress learning for their students.

Statement of the Research Problem

Andragogy continues to be an accepted model for how adults prefer to learn, despite recent research indicating that preferences for andragogical assumptions vary on an international level based on several background variables (Roessger et al., 2020). Still, additional research is necessary to determine what these findings mean on a more local scale. This study will be guided by the following research questions:

Among Arkansas community college students,

Question 1

Is there a relationship between students' preferences for andragogical assumptions and their age, after controlling for race/ethnicity, gender, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?

Question 2

Is there a relationship between students' preferences for andragogical assumptions and their race/ethnicity, after controlling for age, gender, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?

Question 3

Is there a relationship between students' preferences for andragogical assumptions learning and their gender, after controlling for age, race, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?

Question 4

Is there a relationship between students' preferences for andragogical assumptions and their socioeconomic status, after controlling for age, race/ethnicity, gender college readiness, program type, class standing, cultural differences, and parents' educational attainment?

Question 5

Is there a relationship between students' preferences for andragogical assumptions and their level of college readiness, after controlling for age, race/ethnicity, gender, socioeconomic status, program type, class standing, cultural differences, and parents' educational attainment?

Question 6

Is there a relationship between students' preferences for andragogical assumptions and their class standing, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, cultural differences, and parents' educational attainment?

Question 7

Is there a relationship between students' preferences for andragogical assumptions and their program type, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, cultural differences and parents' educational attainment?

Question 8

Is there a relationship between students' preferences for andragogical assumptions and their culture, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, class standing, and parents' educational attainment?

Question 9

Does age influence the relationship between gender and andragogical learning preferences?

Definition of Concepts

The following variables and concepts are central to this study:

- *Adult Learner*: A person who is at least 24 years old when enrolling in an institution of higher education (Golubski, 2011).
- *Age:* The length of time a student has lived measured in years.
- *Class standing:* A designation given to define a student's progress toward their graduation goal. For Arkansas community colleges, students with 29 credits or less are considered freshman, while students with 30 credits or more are considered sophomores.
- *College or university:* A public, four-year, regionally accredited institution of higher education.
- *College readiness:* The ability for a student to enroll and succeed in a for-credit college course without remediation (Conley, 2007).
- *Community college:* A public, two-year, regionally accredited institution of higher education.
- *Culture:* The environment in which a person develops, which helps them make meaning of the ambiguity in everyday life (Carriere, 2013).

- *Parents' educational attainment* or *parental educational attainment:* The highest level of school completed by a parent or guardian. For the purposes of this study, parents' educational attainment will be categorized into five options: less than high school diploma, high school diploma, some college/associate's degree, Bachelor's degree, or advanced degree, and will be self-reported by the student.
- *Program Type:* The type of program in which a student is enrolled, either general technical education.
- *Readiness to Learn (RtL):* The likelihood of a person to seek out knowledge and participate in behavioral change (EuroMed Info, 2019).
- *Remediation:* Enrollment in at least one not-for-credit college class, in math, reading, and/or English, or mandatory enrollment in a tutoring lab embedded in a for-credit class. Remediation is required when a student does not score at college-level on a standardized placement test. According to the ACT, college level scores are 18 in English and 22 in reading and math (ACT, 2020).
- *Skills gap:* A condition that exists when industry demand for specific skills exceeds the supply of individuals who possess those skills (D'Amico et al., 2019).
- *Socioeconomic status:* The compilation of a student's material wealth and noneconomic characteristics, such as social prestige and education (Hackman & Farrah, 2008).
- *Student:* A person aged 18 years or older who is enrolled in a certificate- or degree-seeking course of study at an institution of higher education.
- *Workforce Education:* A component of the community college mission that seeks to address the skills gap (D'Amico et al., 2019).

Scope and Limitations

This study will focus on postsecondary community college students who attend one of the 22 community colleges in the state of Arkansas. The study will be of interest to community college administrators and educators in Arkansas regarding the relationship between student factors and their preferences for andragogical assumptions. Educators from other states and types of institutions should be cautious about generalizing the results of this study to their student populations. After all, the premise of the study is that individual student characteristics should be considered in order to best serve each student. As such, drawing generalizations from the results is strongly discouraged.

Limitations to this study include participant availability, lack of prior empirical data on the topic, underlying variables not controlled for, and self-reported data. Even though the survey will be sent to a large population, participation is likely to be low. According to Chaffey (2019), as of March 2018, the open rate of emails in the Education and Training Industry is only 21.8% and the click rate is approximately 2.5%. Such a low response rate may make it difficult to obtain sufficient data. One of the many criticisms of andragogy is its lack of empirical data; as such, finding adequate research to build upon has been a limitation. While this study is controlling for a number of variables, there are many more (home environment, learning disabilities, occupational status, and length of residency within the region, to name a few) that have not been taken into consideration that could impact the results of this study. Finally, the data being gathered is self-reported, which lends itself to bias reporting.

Summary

Merriam and Bierema (2013) remind us that, as adult educators, “our practice is enhanced by knowing as much as we can about who our learners are as well as how they learn”

(p. 11). So, what do we know about community college students in Arkansas? According to a recent publication by the American Association of Community Colleges (2019), 21% of students nationwide who took the ACT in 2017 lived in low-income households and 38% failed to attain a college-ready composite score. In comparison, for the state of Arkansas those numbers were 33% and 49%, respectively. Now, what do we know about how they learn? Unfortunately, this question cannot be answered as easily, which is why this study is necessary. Community college students across the state will be surveyed to measure their preference for andragogical assumptions. If the hypotheses of this study are correct, then preference for andragogical assumptions will vary amongst the different demographic groups. If the evidence of this study supports those hypotheses, then further research may be necessary to determine the best way to help these students succeed.

Chapter 2: Literature Review

The purpose of this study is to examine factors that may relate to Arkansas community college students' preferences for andragogical assumptions of learning. This chapter will provide conceptual and theoretical frameworks on which this study is grounded. It will then review the research questions posed in this study and provide hypotheses based on those frameworks. Sources for this study were found using Google, Google Scholar, the United States Census Bureau, the National Center for Education Statistics, the West Memphis public library, and the ERIC, ProQuest, and Quick Search databases available through the University of Arkansas Libraries, as well as the reference lists of relevant studies. Search terms include, "andragogy," "andragogical learning," "andragogy and race," "community college and andragogy," "Mississippi River Delta," "Northwest Arkansas culture," "culture shapes learning," "culture and development," "readiness to learn," "readiness to learn scale," "Arkansas education rankings," "community college history," "ecological systems theory," "ecological theory of development," and "Maslow."

Conceptual Framework

Every study seeks to answer a question that is not easily answered or provide insight on a phenomenon that is not easily explained. As such, research must be conducted to learn as much as possible about each variable that surrounds the issue being studied. This study seeks to discover if a relationship exists between community college students' preferences for andragogical assumptions and their age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and/or culture, as well as whether or not age and gender interact within that relationship. The following section examines the literature surrounding the concepts of age, race/ethnicity, gender, socioeconomic status, college readiness, class standing,

program type, and culture within the context of andragogy. The unique nature of community colleges is also examined, followed by conclusions made as a result of the literature review.

Andragogy

Malcolm Knowles is known as the "Father of Andragogy" in the United States. He originally defined andragogy as, "the art and science of helping adults learn," but later revised his definition to describe andragogy as one end of a learning spectrum distinguished by six assumptions of how mature learners prefer to learn (Knowles, 1980, p.43). At the opposite end of the spectrum is pedagogy, which explains how immature learners prefer to learn (Knowles, 1980). The concept of teaching adults has existed throughout most of history. Knowles (1990) points out that the prominent teachers and philosophers of ancient eras – Socrates, Plato, Confucius, Jesus, etc. – spent their time teaching adults, not children.

While Knowles was the first to coin the term andragogy in the U.S., he certainly was not the first to be interested in the topic of adult education. The theories Eduard C. Lindeman were particularly influential in shaping Knowles's assumptions of the adult learner. Lindeman (1926) felt that adult education should be focused on the learner's needs, be problem-oriented, and value the learner's experience (as cited in Knowles, 1990).

Knowles (1990) outlines many of the works he drew upon to formulate his own assumptions. He begins his historical outline of adult learning by stating that it was not until 1928 that a study by Edward L. Thorndike empirically supported the concept that adults were capable of learning, and that within the following decade, further studies provided results demonstrating that adults were not only capable of learning, but they had interests (Thorndike, 1935) and abilities (Sorenson, 1938) unique from children. From there, Knowles continues laying the foundation of adult education by citing many more scholars who contributed to ideas

surrounding adult learning. Mann (1929) called attention to the need for an education program that assists adults to be successful in their industries and professions. Snedden (1930) proposed that adult education should be designed in a manner that put greater responsibility on the learner to be responsible for self-education. Leigh (1930) referenced an emerging belief of true lifelong learning that begins at birth and ends at death, where life experiences create meaning for the learner as an active participant to learning (as cited in Knowles, 1990).

With those and many other scholarly influences in mind, Knowles (1990) created six assumptions he felt were true of adult learners:

- Need to know: Adult learners need to know the significance of what they are learning. Why is it important to learn this subject/topic/skill?
- Self-concept: An adult learner's self-concept as a mature, independent person creates a psychological need to be self-directing.
- Foundational experiences: Adult learners bring with them a wide range of personal and professional experiences that impact learning.
- Readiness to learn: Adult learners will not exhibit a readiness to learn something until a real-life situation requires the knowledge.
- Learning orientation: Adult learners have a problem-centered orientation to learning. They learn most effectively when allowed to apply what they learn to real-life scenarios.
- Motivation to learn: Adult learners are most motivated by internal factors, such as increased self-confidence or improved quality of life.

Andragogical assumptions are far-reaching and multi-disciplinary. Institutions of higher education and business training models both employ andragogical assumptions

(HRDevelopmentInfo.com, 2019). Chan (2010) cites articles indicating that andragogical assumptions are also utilized in the fields of medicine and criminal justice, and in at least ten European countries. Roberson (2002) contends that andragogy is useful in a variety of disciplines and settings and applicable outside of the confines of culture.

Still, despite its long reach, the concept is not without its critics. Hansman and Mott (2010) call andragogy a generic model for typical adult learners that ignores social and learning contexts. Some feel the sample Knowles used was too homogenous to accurately reflect the total adult learning population (Henschke, 2011; Lee, 2003). Others point out the lack of empirical evidence makes the theory questionable (Merriam et al., 2007; Taylor & Kroth, 2009).

A quantitative study by Roessger et al. (2020) reviewing data from the Program for the International Assessment for Adult Competencies (PIAAC) indicates that these critics' concerns may be valid. They found that several factors, including age, gender, and cultural values, may all influence an individual's preference for andragogical assumptions. And while this is just one set of findings, the results are certainly worth further exploration. Is andragogy really "the art and science of teaching adults," or is it the art and science of teaching white, upper middle-class adult males?

Age and Andragogy

The first question of this study looks at the relationship between a student's age and their preference for andragogical assumptions. Age is a straightforward concept. But, at what point does a person reach adulthood? Knowles himself struggled with defining adulthood with any degree of certainty. Ultimately, he landed on two criteria for adulthood – matured social roles and an independent self-concept (Knowles, 1980). Even within these criteria, though, much ambiguity exists. Some people get a job, move out of their parent's household, and become

financially independent as teenagers. Others may be well into their 30's and still not meet that criteria. Similarly, some establish a strong self-concept at an early age, while others never get there. Within higher education – and for the purpose of this study – age 24 is the accepted age of adult learners (Golubski, 2011).

Self-concept is the assumptions that as independent and mature individuals, adults "have a deep psychological need to be generally self-directing" (Knowles, 1980, p.43). Some studies have been done that provide evidence which supports the assumption of self-directedness increasing with age (Botha & Coetzee, 2016; Reio & Davis, 2005; Roessger et al., 2019). Botha & Coetzee (2016) used the Adult Learner Self Directedness Scale to survey 1,102 students at a comprehensive Open Distance Learning (ODL) university in South Africa. Their findings showed that students age 50+ had significantly higher success orientation scores than those of their younger peers. Reio and Davis (2005) used the Self-Directed Learning Readiness Scale (SDLRS) to survey 530 students in varying stages of their academic careers (high school, dental school, and adult education). They found as age increased, so did scores on the SDLRS. Roessger et al. (2019) looked at community college students' behaviors regarding academic advising. They theorized that students with high self-direction are less likely to meet with an academic advisor and more likely to create an academic plan on their own. Their study showed that, as age went up, students were indeed less likely to meet with an advisor, supporting their hypothesis.

The studies above seem to support Knowles's assumption of self-concept; however, this is only one andragogical assumption out of six. Hagen and Park (2016) claim that this assumption and three others (foundational experiences, readiness to learn, and learning

orientation) can be supported by the neuroscience of how adults learn. However, there is still a lack of empirical evidence to support that such claims are relevant to all adult learners.

Gender and Andragogy

Another question this study seeks to answer is whether a relationship exists between a student's gender and their preference for andragogical assumptions. Not too terribly long ago, gender was also a straightforward concept, synonymous with one's biological sex. Now, many believe that gender is performative, meaning that gender is not something humans are born into, but rather is a result of choices they make (Cameron, 1997). Obviously, this definition makes gender a much more fluid and complex concept than it once was. This study does not seek to promote either definition over the other but will allow students to self-identify gender based on their own personal perspectives of the concept. Two of the studies reviewed hereafter have taken similar approaches, allowing students to identify their gender as male, female, or a third option for those who prefer not to disclose their gender or who do not identify as one specific gender (King-Spezzo et al., 2020, Roessger et al., 2019). The third study reviewed only offered students the choice between male or female (Reio & Davis, 2005). However, all three studies found a relationship with learning preferences.

In the studies outlined in the previous section, Reio and Davis (2005) and Roessger et al. (2019) also found that gender interacts with age as a predictor of self-directed learning readiness. Reio and Davis found that at a younger age, females were more likely to be self-directed than males but that the differences leveled out as students aged. Roessger el al. (2018) found that, initially, young women were more likely to seek out an advisor (thus displaying lower levels of self-direction) and then became less likely than their male counterparts to seek out advising as they aged. Although the results of these two studies seem to contradict at first glance, one

possible explanation for the discrepancy is the difference between self-reported and observed behavior. Reio and Davis (2005) obtained their results via survey, while Roessger et al. (2019) reviewed institutional records to investigate the students' actions. In both studies, though, the relationship between age and gender with self-directedness was significant. The final question of this study seeks to further clarify this relationship as it relates to students' preferences for andragogical assumptions.

King-Spezzo et al. (2020) analyzed the results of 170 students at a university in Georgia to answer two questions: 1.) Are there significant differences between students' expectations of an ideal classroom setting for face-to-face versus online environments, and 2.) Are there significant differences between student demographics and their expectations of an ideal online classroom environment? The answer to question one was no. King-Spezzo et al. (2020) did not find any significant difference between a student's expectations for an ideal classroom online versus the expectations of an ideal classroom that takes place face-to-face. Classroom expectations were measured based on a student's ideal level of task orientation, teacher support, and student influence. However, for the second question, they found that yes, there was a relationship between certain demographic characteristics and a student's expectations of an ideal classroom. One of those demographic characteristics was gender. King-Spezzo et al. (2020) found that female students preferred higher levels of task orientation and teacher support in an ideal classroom than their male counterparts. Their study also found that the perception of an ideal classroom varied by race, which leads to the next question of this study.

Race and Andragogy

Does a relationship exist between a student's race and preference for andragogical assumptions.? Many of those skeptical of Knowles's assumptions voice concerns over the

sample he used to draw his conclusions. Among those concerned is Lee (2003) who believes that Knowles "overgeneralized the characteristics of this population and claimed these as attributes of adult learners," and in doing so "silenced and marginalized various social groups" (p. 15). Many agree, accusing American education in general as being a system that perpetuates inequality, existing for the benefit of the dominant culture and economically advantaged (Duff, 2019; Guinier, 2015; Hunn, 2004). Duff (2019) specifically calls out andragogy as being a poor model for adult black males, stating that "it falls short in its ability to address multi-faceted dimensions of adult Black males" (p. 54). Of the multi-faceted dimensions adult black males face, Duff (2019) calls attention to the issues of identity development, mass incarceration, and racism.

Sadly, racism continues to be a monumental problem in this country. This literature review is being written at a pivotal point in our nation's history. George Floyd was recently laid to rest after his life was taken in Minneapolis by a man whose duty it was protect it. This occurred only two months after Breonna Taylor was shot and killed by police while sleeping in her own apartment in Louisville. One month before that, Ahmaud Arbery was chased down and shot by two men (a retired police officer and his son who suspected him of being a thief) while jogging a few blocks from his neighborhood. In August 2019, Elijah McClain, 23, died from cardiac arrest after being put in a chokehold by police. He was stopped because someone called 911 saying he "looked sketchy" while he was walking home from the convenience store (Tompkins, 2020). These stories are examples of black lives taken by white men because they were mistreated and misjudged solely based on the color of their skin. Peaceful protests across the country turned violent as people from all backgrounds filled with pain and anger lashed out in an attempt to be heard.

Are we, as educators, willing to hear them? As different types of organizations around the country scrutinize their policies and practices, what will our response be? This study may be questioning Knowles's assumptions about adult learners, but here is one point on which we agree:

> A society in which gaps between people (youth vs. adult, black vs. white, East vs. West, rich vs. poor) are becoming better defined and less tolerable requires a citizenry that is liberated from the traditional prejudices and is able to establish open, empathetic, and collaborative relationships with people of all sorts. (Knowles, 1980, p. 36)

How do we create such a citizenry? The answer is education, but it cannot be the same form of education we have always provided. Adult education as it exists in our country today is considered by some to be "miseducation," training that exalts the dominant society and, as a result, works to tear down nondominant cultures, making them appear less significant (Hunn, 2004, p.68). This study responds to that criticism by analyzing how race and learning preferences are related. However, the move from miseducation to education must address more than race alone. Guinier (2015) urges us to move past the traditional college admission requirements of GPA's and test scores and focus on democratic merit instead. She argues against the conventional idea of affirmative action, too, stating that as it stands now affirmative action only provides aesthetic diversity – still giving preference to those who can perform well academically, those who, traditionally, come from higher socioeconomic backgrounds.

Socioeconomic Status and Andragogy

According to the US Census Bureau (2019a), the 2018 poverty rate is the lowest it has been since 2007. Still, there are 38.1 million people in this country living in poverty. Unsurprisingly, level of education seems to have a strong correlation with poverty. Just over 25% of those with no high school diploma live in poverty, compared to 12.7% with a high school diploma. For those with a Bachelor's degree, that number plummets to 4.4%. Poverty is not

distributed equally among races, either. Only 8.1% of the white, non-Hispanic population lives in poverty – the lowest percentage among races reported. Approximately 10% of the Asian population lives in poverty, while for the Hispanic and Black populations, those rates are 17.6% and 20.8%, respectively.

The Organization for Economic Cooperation and Development (OECD) notes that socioeconomic status has a strong impact on students' learning outcomes (OECD, 2020). Sadly, when students from low-income backgrounds perform well, they are still less likely to attend selective colleges, even when their test scores are exactly the same as those of higher income students (Opportunity Insights, 2020). So those with lower levels of income are more likely to remain in poverty, but then they are also less likely to be accepted into college to raise their level of education. Access certainly seems to be one issue, but not the only one.

Completion rates are also much lower for students with lower socioeconomic backgrounds. Fain (2019) analyzed completion data for students who were in 9th grade in 2009 (on track to graduate high school in 2012). When looking at those students based on which income quintile they fall into, 79% of the students from the top quintile who enrolled in college within one year of graduation had either earned a credential or were still enrolled by 2016, compared to approximately 33% of those in the lowest quintile. For colleges that accept 90% or more of their applicants (community colleges, e.g.), students who received a Pell grant held completion rates approximately 12% lower than their non-Pell recipient peers (Fain, 2019). Obviously, some changes are necessary to help these students succeed.

Students who are disadvantaged socioeconomically are also disadvantaged when they attempt to pursue their higher education goals, but why is it important to consider this within the context of andragogy? The connection between socioeconomic status and andragogy can best be

seen through Maslow's hierarchy of need. In his theory of human motivation, Maslow (1943) outlined five basic needs which humans are motivated to maintain:

1. Physiological (food, water, sleep, etc.)
2. Safety (from wild animals, weather elements, violence, etc.)
3. Love (belongingness, acceptance, affection, etc.)
4. Esteem (confidence, achievement, prestige, admiration from others, etc.)
5. Self-Actualization (self-fulfillment, realizing one's full potential)

Maslow theorized that these five needs are related in a hierarchal manner, meaning humans will not seek out the higher-level needs (self-actualization) until the lower level, physiological needs are met. Knowles often referenced Maslow in his writings. He saw andragogy as a way to help adult learners achieve self-actualization (Elias & Merriam, 2005). However, according to Maslow's theory, learners will only seek self-actualization after their lower level needs are met. Would it not stand to reason, then, that adult learners of lower socioeconomic status would be less able to pursue self-actualization, and thus, less likely to prefer andragogical learning methods?

It is worth noting that socioeconomic status has a strong correlation to a person's parental educational attainment level (Baum et al., 2013; Carozza et al., 2010; Lareau et al., 2011). Lareau et al. (2011) found that educated parents have a more active role in their child's education, where parents with lower educational levels rely on the teachers to facilitate learning for their children. This passive approach is not because they do not care or want their children to succeed, but because they do not feel comfortable or qualified to take a leadership role in their child's learning (Lareau et al., 2011). As a result, they generally find themselves less able "to prevent their children from being derailed from the higher education trajectory" (Lareau et al.,

2011, p. 264). Because they themselves have never been to college, they feel inadequate to help their children become college ready.

College Readiness, Class Standing, and Andragogy

The next two questions this study attempts to answer relate to the relationship between a student's preference for andragogical assumptions and their level of academic maturity. While most know andragogy as it was originally defined – the art and science of teaching adults – Knowles (1980) later revised his definition to reflect that andragogy was more a set of assumptions for teaching mature learners. But in broadening the definition, one must ask, "What does it mean to be a mature learner?" Knowles attempts to answer that question, as well, providing 15 dimensions of maturation. Among that list of dimensions is the spectrum of ignorance to enlightenment (Knowles, 1980). While the word ignorance has come to have a severely negative connotation, according to Merriam-Webster (2020) the definition of the word simply means, "lack of knowledge, education, or awareness." When considering this dimension of maturation, two relevant concepts come to mind: college readiness and class standing.

College readiness refers to a student's ability to enroll in and pass a for-credit college course without the need for remediation (Conley, 2007). For the purpose of this study, remediation means a student is enrolled in at least one not-for-credit college class, in math, reading, and/or English, or is taking one of those for-credit courses accompanied by a mandatory tutoring lab embedded in the for-credit class. Students who enroll in remediation have a difficult time completing college. According to Bailey et al.'s (2010) analysis of Achieving the Dream participants, only 20 percent of remedial math students and 37 percent of remedial reading students persist to pass a for-credit course of the same subject area within three years. What makes this even more unfortunate is the number of students who require remediation. According

to a national report done by ACT (2018b), only 27 percent of 2018 high school graduates taking the ACT scored at college level in all core subjects. In Arkansas, that number drops to 17 percent (ACT, 2018a). Overall English and math readiness scores have steadily declined since 2014 (ACT, 2018b), meaning more and more high school graduates are completing secondary education without the academic prowess they need to be successful in college.

Students in need of remedial education come from a variety of ethnic and socioeconomic backgrounds, but the data certainly suggest that minorities and low-income students are less likely to be academically prepared. The table below shows the disparity of college readiness based on race/ethnicity. Underserved learners are also much less likely to be college ready. ACT defines underserved as students who are, "first generation to attend college, come from low-income families, and/or self-identify their race/ethnicity as minority" (ACT, 2018b, p.9). Fifty-two percent of students who do not qualify as underserved met the college ready benchmark in three or more subjects. In contrast, only 10 percent of students who met all three criteria of the underserved definition met the college ready benchmark.

Table 2

Percentage of ACT Test Takers Nationwide Meeting College Level Benchmarks by Subject and Race/Ethnicity

Race/Ethnicity	English	Math	Reading	Science	3+ Subjects
African American	32	13	20	11	11
American Indian	32	15	23	15	14
Asian American	77	69	62	59	62
Hispanic	46	26	33	22	24
Pacific Islander	41	24	27	21	22
White	72	49	56	46	48
All Students	60	40	46	36	38

One challenge community colleges face is to meet students where they are and help them achieve their academic goals. Unfortunately, this is not a challenge that is easily overcome. Success rates for students who enroll in remedial education remain low (Bailey et al., 2010).

What are we missing when it comes to best serving these students? How do we help them succeed? Perhaps the teaching strategies we have always employed do not match well with students' learning preferences. Perhaps the methods we use are better suited for more mature learners.

What does it mean to be a mature learner? One way to measure learning maturity might be a student's class standing. Class standing refers to a student's college classification based on the number of credit hours earned. In Arkansas, students are classified as freshmen until they successfully complete 30 credit hours, at which point they become sophomores. As students successfully complete classes and move up in class ranking, they gain more experiences with which to make connections to new knowledge, and they have more tools and skills with which to work.

Program Type and Andragogy

Some students come to college hoping to increase their employability. Those students will generally seek a degree or certificate in a workforce or technical program, or they will enroll as non-degree seeking and take only the specific course or courses they need to improve their vocational skills. McKinney et al. (2017) states that 81% of certificates offered by institutions of higher education are in occupational fields of study. Bosworth (2010) indicates that over 43% of those certificates are in the healthcare field with other popular fields including hospitality and culinary, mechanical, and business.

Workforce and technical programs lend themselves to many andragogical assumptions. Because employment or advancement are often the end goals of such classes, readiness to learn and need to know are established upon enrollment. Smalley & Sands (2018) argue that for workforce and technical education to be successful, connections must be made between the

curriculum and real-life scenarios. Lundry et al. (2015) state that these courses should provide entry-level skills upon which students can build. These directly relate to andragogy's assumption of foundational experiences. Community colleges are expected by employers to teach their workforce and technical students problem-solving and critical thinking skills (Hirschy et al., 2015), enforcing the andragogical assumptions of learning orientation and self-concept.

Despite the parallels in workforce education curriculum and andragogy, the students seeking workforce or technical certificates are more likely to be female, age 25 or older, a student of color, a first-generation college student, come from a lower income background, and be less academically prepared than students pursuing academic fields (McKinney et al., 2017). Non-degree seeks students have similar characteristics (Xu & Ran, 2020). These characteristics were discussed earlier in this literature review, and the literature indicated that student preference for andragogical assumptions could be lower for these types of students. However, these characteristics are being controlled for in the study. Therefore, only the characteristics of the program types will be taken into consideration when making a hypothesis.

Culture and Andragogy

So far, the variables discussed have been easily identifiable and/or measurable, but sometimes, intangible objects have the largest influence. Culture is one of those hard-to-explain, difficult-to-define, intangible concepts. Like love or achievement, it means something slightly different to each person. Hofstede (1984) defines it as "the collective programming of the mind which distinguishes the members of one human group from another" (p. 21). So why is culture important? The culture in which a person is immersed influences his or her thoughts and behaviors. The things a person values, the way a person thinks, and the way a person prefers to learn are all shaped by culture. The cultural context is crucial to understanding any learning that

takes place (Merriam & Ntseane, 2008). Problematically, Roberson (2002) declares , “The linear perspective of Knowles’s learning contract reflects western notions of rationality and analysis, and does not incorporate the cultural imperatives and diversity in ways of knowing” (p.6).

Cultural imperatives must be considered by educators. Jaju et al. (2002) conducted a quantitative study of over 600 undergraduate business students in India, Korea, and the United States using Kolb’s experiential learning model and Hofstede’s cross-cultural framework. They explained their results as follows:

> As members of a masculine society, US students prefer concrete experiences. Students in India, being from a high-power distance society, prefer concrete experiences and reflective observation. The uncertainty avoidance of Indian students is low; correspondingly, Indian students indicate high scores on abstract conceptualization and active experimentation. Students from Korea, hailing from a culture of high uncertainty avoidance, low individualism and low masculinity, have a strong preference for reflective observation. (p.55)

More recently, Boland et al. (2011) reaffirmed differences between students by nation in their study of 224 students in Australian, Belgian, and Japanese universities using Kolb’s Learning Style Inventory and Hofstede’s Value Survey Model. Each student was enrolled in accounting classes and was native to the country in which they were enrolled. Their resulted indicated significant differences in the way student preferred to learn. Students from Australia and Belgium were more individualistic and preferred learning by thinking and doing, while the Japanese students were more collectivistic and preferred to learn by feeling and watching. But to simply know that these differences in preference exist is not enough.

When educators fail to recognize the importance of culture, it can have detrimental results in the classroom. In a quantitative study of 224 Japanese students using English in their online interactions, Jung et al. (2012) found that the instructional design of an online course influenced the stress level of students, citing the Japanese culture’s high level of uncertainty

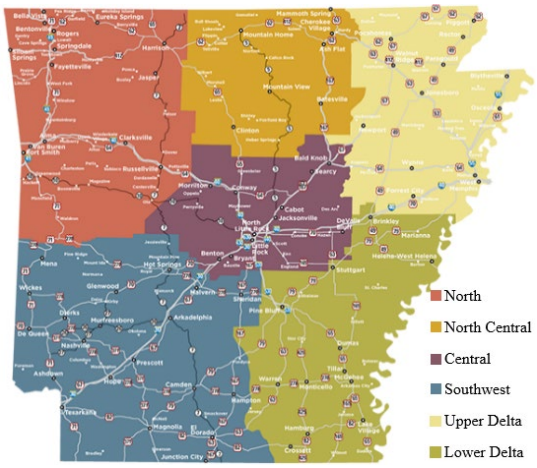
avoidance as an indicator for a need for clear structure, precise objectives, and well-defined methods and criteria for assessment. Similarly, a qualitative study of 16 Chinese students taking online classes at an Australian university reported that the culture shock experienced in the online setting was so jarring that it led to limited learning and feelings of isolation (Chen & Bennett, 2012). While visibly unseen, culture clearly influences students' learning, even in an online setting, when one-size-fits all instructional methods are utilized. How much more so might that be the case in a face-to-face environment? Regardless of the learning format, educators need to be cognizant of cultural factors that could impact learning.

Culture and Arkansas

One matter of cultural competency that is often overlooked is place diversity (Bice-Wigington & Morgan, 2018). Bice-Wigington and Morgan (2018) found that a new approach is needed in addressing health issues in rural areas due to the differences that exist in cultural identity, relationships and expectations, and cultural empowerment. Their study relates to educating communities to improve health issues; still, it shows the importance of recognizing cultural components of those communities and adjusting teaching approaches accordingly in order to improve outcomes. Let us apply the concept of place diversity within the state of Arkansas.

While many people may look at a U.S. map and see one uniform state, Figure 1 shows that Arkansas consists of six unique regions, rich with their own histories and cultures. As previously discussed, those cultures will likely impact how the students living in the region approach learning. In much of the research reviewed, North and North Central Arkansas were considered one region with similar historical and cultural contexts, as were the Upper and Lower

Delta regions. For that reason, these six regions have been condensed to four, as depicted in Figure 2.



Note: (Living in Arkansas, 2018)

Figure 1
Geographic Regions of Arkansas

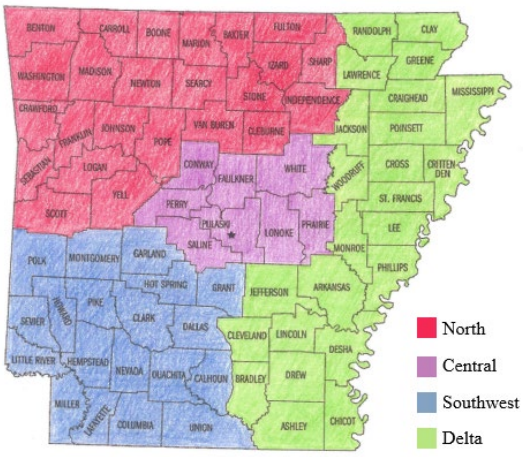


Figure 2
Cultural Regions of Arkansas

North Arkansas. According to Phillips (2016) the population of Arkansas dropped from approximately 2 million to 1.75 million between the 1940's and the 1950's. After World War II, the children of farmers were drawn away from the state by higher paying jobs across the nation. However, between the 1960's and the 1970's, the population recovered in a big way, surpassing its original number of 2 million by 1980. The great majority of these Arkansas immigrants

settled in Northwest and North Central Arkansas. While the statewide growth in the 1970's was 18.9 percent, for these two regions the increases were 40.6 percent 32 percent respectively (Phillips, 2016).

Phillips identified three sources of people that accounted for the influx: retirees, returnees, and hippies. Jeffords (1976, as cited in Phillips, 2016) reported that approximately 60 percent of people moving into Arkansas were retirees. Returnees and hippies each accounted for about 20 percent each. In his qualitative study of the hippies who moved to Northwest and North Central Arkansas during that time, Phillips (2016) found that 75 percent of the 36 participants arrived in Arkansas with an undergraduate degree. If his study results are reflective of the population that moved to these regions, then Northwest and North Central Arkansas became much more educated in a short period of time. Even if the percentage of educated settlers was much lower, just the sheer number of outsiders moving into the region during those two decades dramatically changed the culture and economy of these two regions. As a result, the region today is widely known for its art, music, and mountains (Arkansas.com, 2020).

North Arkansas has five community colleges in the region: Arkansas State University-Mountain Home (Baxter Co.), North Arkansas College (Boone Co.), Northwest Arkansas Community College (Benton Co.), Ozarka College (Izard Co.), and University of Arkansas Community College at Batesville (Independence Co.). Demographic information for those five counties is found in Table 3. North Arkansas is the wealthiest region of the state. Four out of five of these counties have poverty levels below the state average (16.3%), and Benton County even has a poverty level well below the national average (13.1%).

Table 3

Demographic Data for Counties in North Arkansas that house a Community College

County	Poverty Rate	Age			Race			Gender	
		0-19	20-64	65+	White	Black	Other	Male	Female
Statewide	16.8	26.3	56.8	16.8	76.5	15.2	8.3	49.0	51.0
Benton	8.6	28.6	58.1	13.3	87.4	2.4	10.2	49.6	50.4
Independence	14.5	26.6	56.3	17.2	91.9	1.9	6.2	48.6	51.4
Boone	14.8	24.7	55.1	20.1	96.1	0.4	3.5	49.2	50.8
Baxter	15.1	19.2	50.1	30.8	96.6	0.2	3.1	48.5	51.5
Izard	18.7	20.5	54.6	24.9	94.7	1.9	3.4	51.8	48.2

Central Arkansas. With its proximity to the Arkansas River and the rest of the state, central Arkansas always had the potential to be an economic epicenter, but in its earliest days getting there proved difficult. For the incoming white settlers, waterways were the primary means of transportation in Arkansas. However, traveling the Arkansas River was grueling, until 1822 when the first steamboat appeared in the Little Rock. Steamboats allowed travelers to do in days what previously took weeks. By 1836, Little Rock was made its mark as a commercial center for the state (Federal Works Agency, 1941).

Today, Little Rock continues to be the commercial capital of the state. The River Market District of Little Rock is home to many museums, breweries, restaurants, and retail stores (Arkansas.com, 2020). With the faster pace, later nights, and larger entertainment offerings that an urban setting offers, Central Arkansas supports its local economy through a variety of successful businesses. The Metro Little Rock Alliance (2020) identified manufacturing, healthcare/biotechnology, transportation/distribution, and food processing among the region's key industries.

Central Arkansas consists of eight counties in the middle of the state, which all border at least one of the other regions of the state. The central region is home to three community colleges: Arkansas State University – Beebe (White Co.), University of Arkansas Community

College at Morrilton (Conway Co.), and University of Arkansas Pulaski Technical College (Pulaski Co.). Demographic information for the three counties with community colleges are found in Table 4.

Table 4

Demographic Data for Counties in Central Arkansas that house a Community College

County	Poverty Rate	Age			Race			Gender	
		0-19	20-64	65+	White	Black	Other	Male	Female
Statewide	16.8	26.3	56.8	16.8	76.5	15.2	8.3	49.0	51.0
White	16.6	27.9	56.4	15.7	91.3	4.5	4.3	48.4	51.6
Conway	17.9	24.8	56.4	18.7	85.2	10.9	3.8	48.7	51.3
Pulaski	16.7	25.5	59.1	15.6	55.2	37.0	7.8	47.8	52.2

Southwest Arkansas. The southwest part of the state is mostly known for its focus on industry and education (Cole-Jett, 2014). While some farming still takes place in the region, the discovery of bauxite, aluminum, lignite coal, and petroleum and other natural resources created industrial opportunities that do not exist in other regions of the state. With the emergence of the railroad system in the late 1800's, timber also became a significant trade with an abundance of sawmills and furniture manufacturers in the regions (Cole-Jett, 2014).

Early on, this region placed a high priority on education. The region was home to the first public school in 1822 and later established two colleges. Hope was the first city west of the Mississippi River to house a training facility for black educators during the period of school segregation (Cole-Jett, 2014). Hope established a vocational and technical college in 1966. Currently, the region boasts 10 institutions of higher education in the 19-county region. Southwest Arkansas's focus is uniquely different from that of the other regions in the state. Could this regional emphasis on education lead to a differing level of preference for andragogical assumptions?

Southwest Arkansas is home to seven community colleges: Arkansas State University-Three Rivers (Hot Spring), National Park College (Garland), South Arkansas Community College (Union), Southern Arkansas University Tech (Ouachita), University of Arkansas Community College at Hope (Hempstead), University of Arkansas-Cossatot (Sevier), and University of Arkansas-Rich Mountain (Polk). Demographic information for the seven counties that house a community college is found in Table 5.

Table 5
Demographic Data for Counties in Southwest Arkansas that house a Community College

County	Poverty Rate	Age			Race			Gender	
		0-19	20-64	65+	White	Black	Other	Male	Female
Statewide	16.8	26.3	56.8	16.8	76.5	15.2	8.3	49.0	51.0
Union	18.2	26.1	57.0	16.9	64.1	32.6	3.3	48.7	51.3
Hot Spring	18.7	22.9	58.7	48.4	84.6	12.0	3.4	52.0	48.0
Polk	20.0	25.4	52.5	22.2	91.9	0.5	7.6	48.7	51.3
Sevier	20.1	31.1	54.8	14.1	63.2	5.1	31.8	50.1	49.9
Garland	20.4	22.7	54.2	23.2	86.1	7.4	6.5	47.5	52.5
Hempstead	20.6	28.4	54.0	17.5	59.3	30.5	10.2	47.7	52.3
Ouachita	23.3	24.9	56.1	19.2	56.6	41.1	2.3	47.0	53.0

Arkansas Delta. A region along the Mississippi River, encompassing portions of seven states: Illinois, Missouri, Kentucky, Tennessee, Arkansas, Louisiana, and Mississippi, the Mississippi River Delta (the Delta) is often characterized as having a large African American presence, including some counties where African Americans represent the majority. The Delta is known extensively for its farming and is plagued by low income, high unemployment, and (south of Memphis) low high school graduation rates (Davidson & Paradise, 2015). It is operationalized as the 231 counties and parishes located in the relatively flat and highly fertile lands that border the Mississippi River (Green et al., 2015). According to Green et al., local governance of the agricultural segment of the Delta neglected the importance of investing in basic education and health infrastructure which resulted in low income and high poverty rates for the region.

Unfortunately, these are problems that still afflict the region today. Whayne (2015) states, "The harsh truth is that people of the Mississippi Delta created a system which is today marked by extremes of wealth and poverty that more nearly resemble a third world country than post-industrial America" (p. 129). Despite the many attempts by politicians, social scientists, and philanthropic groups to improve the condition of the Delta, the problems still seem impenetrable (Whayne, 2015).

The Arkansas Delta includes 24 counties and is home to seven community colleges: Arkansas Northeastern College (Mississippi), Arkansas State University Mid-South (Crittenden), Arkansas State University-Newport (Jackson), Black River Technical College (Greene), East Arkansas Community College (St. Francis), Southeast Arkansas College (Jefferson), and University of Arkansas Phillips Community College (Phillips). Demographic information for those counties is found in Table 6.

All seven of these counties have poverty levels above the nationwide average, and six of the seven have levels higher than the statewide average, as well. So, is all hopeless in the Delta? Nothing is ever completely without hope, but the road to improvement may be difficult. In a study of K-12 students, Barlow (2008) found that the cost of helping low-income students be successful increases disproportionately to the poverty rate. Still, education is worth the investment.

Table 6

Demographic Data for Counties in the Arkansas Delta that house a Community College

County	Poverty Rate	Age			Race			Gender	
		0-19	20-64	65+	White	Black	Other	Male	Female
Statewide	16.8	26.3	56.8	16.8	76.5	15.2	8.3	49.0	51.0
Crittenden	19.2	29.7	57.1	13.3	44.4	48.5	7.1	47.5	52.5
Greene	16.5	27.0	57.5	15.5	95.4	1.6	3.0	49.1	50.9
Jefferson	22.2	24.7	58.1	17.2	39.8	57.6	2.6	49.1	50.9
Jackson	25.6	22.1	60.6	17.3	78.5	12.4	9.0	49.4	50.6

Table 6 Cont.

Demographic Data for Counties in the Arkansas Delta that house a Community College

County	Poverty Rate	Age			Race			Gender	
		0-19	20-64	65+	White	Black	Other	Male	Female
Mississippi	25.7	29.0	56.9	14.0	60.4	35.2	4.5	48.7	51.3
Phillips	35.4	28.1	54.2	17.6	36.2	62.6	1.2	47.3	52.7
St. Francis	35.6	23.9	60.9	15.1	40.9	55.6	3.6	54.9	45.1

According to Rutherford, Hillmer, and Parker (2011), Dundee Elementary School, a high poverty district in Tunica County, Mississippi increased the number of 4th graders who scored proficient on the statewide language arts exam from 16.2% to 88% over the course of two years by focusing on literacy and improving teachers' strategies, proving that low income is not an excuse for low achievement. Both students and teachers must be held to high standards to see true improvement (Rutherford et al., 2011). While this study was conducted on children, its results are noteworthy and promising. Perhaps the true challenge, with both adolescent and adult learners, is to find what learning methods work best for each student.

Arkansas Culture Summary. Arkansas may be one single state, but the regions therein are individually unique. North Arkansas had a large inflow of people in the early 20th century, with most people coming representing educated populations from other states. Central Arkansas is the only urban region of the state, with a faster pace, denser population, and larger variety of extracurricular experiences than other regions. South Arkansas placed a priority on education early on and focused on building economic development through a variety of industries. Finally, the Delta is known for its farming and large socioeconomic disparities. What do these distinct regional contexts mean in relation to andragogical assumptions? Might preferences for these assumptions vary as a function of the regions' unique factors?

Andragogy and the Readiness to Learn Scale

While many have speculated that the factors discussed above likely influence a student's preference for andragogical assumptions, until now, there has been no real implement for empirically testing the extent to which these relationships exist. This is where the Program for the International Assessment of Adult Competencies (PIAAC) Readiness to Learn (RtL) scale comes in. Readiness to learn relates to how likely a person is to seek out knowledge and participate in behavioral change (EuroMed Info, 2019). Adult learners will be ready to learn when they face a problem or experience that exposes a need to learn in order to overcome stressors (Cadet, 2018). For adults, readiness to learn revolves around the perceived relevancy of the topic in relation to the learner's social roles (Taylor & Kroth, 2009).

PIAAC created a RtL section in the background questionnaire of its survey. The PIAAC RtL scale measures two validated constructs: motivation to learn and the learning strategy elaboration (Gorges et al., 2016). The National Academies of Sciences, Engineering, and Medicine (2018) define motivation as, "a condition that activates and sustains behavior toward a goal" (p. 109), and identify several factors that influence motivation to learn, including a learner's self-efficacy, perceived value of what is being taught, interest in the topic, and internal and external rewards. These motivation-to-learn factors align closely with Knowles's assumptions of self-concept, problem-centeredness, and internal motivation (Roessger et al., 2020). Elaboration is defined as the process of linking new information with prior related knowledge (McNamara, 2009). By that definition, elaboration sounds much like Knowles's andragogical assumptions of need to know, foundational experiences, and readiness to learn. In fact, Roessger et al. (2020) conducted a factor analysis and found that all six questions in the readiness to learn survey serve as a reliable measure for measuring the six assumptions of

andragogy. Their framework, depicted in Table 7, clearly makes a connection between the readiness to learn scale and the assumptions of andragogy.

Table 7
A Crosswalk Between RtL Scale and Andragogical Assumptions

Readiness to Learn Question	Learning Construct	Andragogical Assumption(s)
When I hear or read about new ideas, I try to relate them to real life situations.	Elaboration	Need to Know Foundational Experience Readiness to Learn
I like learning new things.	Motivation to Learn	Motivation to Learn
When I come across something new, I try to relate it to what I already know.	Elaboration	Need to Know Foundational Experience Readiness to Learn
I like to get to the bottom of difficult things.	Motivation to Learn	Learning Orientation
I like to figure out how different ideas fit together.	Motivation to Learn	Learning Orientation
If I don't understand something, I look for additional information to make it clearer.	Motivation to Learn	Self-Concept

RtL Q1. *When I hear or read about new ideas, I try to relate them to real life situations to which they might apply.* This question relates to three andragogical assumptions – the need to know, importance of experience, and readiness to learn. When a learner tries to relate a new idea to real life scenarios, they are attempting to find the new idea's relevance to them. They are essentially asking, "Why should I learn this?" (need to know), "How does it fit with what I already know?" (experience), and "How can I apply it to my personal situation?" (readiness to learn).

RtL Q2. *I like learning new things.* This question points to Knowles's sixth assumption – motivation. If a person likes learning new things, then learning in and of itself is an internal motivator.

RtL Q3. *When I come across something new, I try to relate it to what I already know.* A very similar question to RtL question 1, this question also points to the andragogical assumptions of need to know, experience, and readiness to learn. This question ties learning to what the learner already knows from their own experience. Instead of linking it to real life situations that may exist outside the learner's immediate surroundings, this question links learning to personal knowledge.

RtL Q4. *I like to get to the bottom of difficult things.* This question measures a learner's propensity for problem-centered learning.

RtL Q5. *I like to figure out how different ideas fit together.* Much like the previous question, this question measures a learner's proclivity for problem-centered content.

RtL Q6. *If I don't understand something, I look for additional information to make it clearer.* The previous five questions only accounted for five of the six. Fortunately, this question addresses the sixth and final andragogical assumption – self-concept. According to andragogy, an adult learner should have an independent an autonomous spirit that causes them to feel responsible for their own learning. This question speaks to that concept.

Once Roessger et al. (2020) validated the Readiness to Learn scale as a reliable instrument for measuring preference for andragogical assumptions, they turned their attention back to the PIAAC study. Their analysis of those results indicated that preference for andragogical assumptions does indeed vary based on a number of individual and national characteristics:

- Age: As age increased, preference for andragogical assumptions decreased.
- Gender: Males displayed a higher preference for andragogical assumptions than females.

- Educational level: As education level increased, preference for andragogical assumptions also increased.
- Occupational skill level: Preference for andragogical assumptions was higher for individuals with higher occupational skill levels.
- Country of origin: Significant variation exists between countries, with Western countries displaying a higher preference for andragogical assumptions.
- Country's ability to meet basic and psychological needs: As a country's Gallup Share Global Well-being Index score increased, so did its country's citizens preference for andragogical assumptions.
- Cultural values: For each of Hofstede's six cultural dimensions, a one unit increase in score resulted in a statistically significant variance in andragogical preferences.

These results certainly seem to give credence to the criticisms of andragogy as a one-size-fits-all set of assumptions. What, if anything, does this mean for educators and administrators in this country, though? After all, Roessger et al. (2020) did find higher preference for andragogical assumptions in Western countries. Could it still function as a one-size-fits-all for institutions of higher education in the United States?

Community Colleges

Community colleges are very different from four-year institutions in the missions they have and the students they serve. Community colleges are affordable, open-access, regionally accredited institutions of higher learning at which an associate degree is the highest certificate offered (Vaughn, 2006). They have multiple missions and are focused simultaneously on providing four-year transfers, occupational education, remediation and basic skills, workforce development, and services for the community (Beach, 2010), and all of those educational

programs are provided to the underserved populations who make up the majority of community college student bodies (Dassance, 2011).

Cohen, Brawer, and Kisker (2013) explain that as high school graduation rates rose and more students enrolled in college, many prominent university presidents believed that junior colleges should be formed to "relieve the university of the burden of providing general education for young people" (p.6). Community colleges were created to serve students the traditional four-year universities did not want. Universities wanted to remain focused on research, but the need for higher education and vocational training for common, everyday Americans existed. The challenge for community colleges is that the educational goals and aspirations for everyday Americans vary greatly, adding great complexity to the types of students they serve.

Students seeking remediation, adult basic education, or technical or vocational training differ in many ways than students seeking to transfer to a four-year degree program. Xu and Ran (2020) did a longitudinal study of 60,846 students who enrolled in one of nine community colleges that participated in the College by Design initiative. Students were tracked from 2007 until 2013. Of the 60,846 students, approximately 53% were enrolled in credit-bearing courses, 9% were enrolled in developmental education, and 38% enrolled in non-credit bearing courses (Adult Basic Education, General Education Development, English as a Second Language, and non-credit vocational training). Except for vocational training, completion rates were much lower for non-credit students (around 55%). Students enrolled in non-credit vocational training had similar completion rates (75.5%) to students enrolled in for-credit courses (77.6%). Xu and Ran also found that, on average, those students enrolled in non-credit classes were older, lower income, and more likely to be part-time than their for-credit peers. In comparison to four-year

institutions, even the for-credit students at community college are older, lower income, and more likely to be part-time on average (National Center for Educational Statistics, 2020b).

We can see, then, that community colleges were not created to be miniature universities. Their purpose and students are much more complex and comprehensive than that. Pfahl et al. (2010) described it this way, "The need for trained workers, drive for social equality, and inclination to forge institutions of practical value to society spurred development of U.S. community colleges during the early 20th century" (p. 231). Over a century later and that same struggle for social equality continues. Many students being served by community colleges are simply not prepared for higher learning in the same way as students at four-year institutions. Provasnik and Planty (2008) reported that in the 2003-2004 academic school year, more than one in four first-time entering community college students (29%) self-reported taking at least one remedial course. They also found that community colleges serve a larger number of females, blacks, Hispanics, and low-income students than four-year institutions.

Despite the difference in student populations, teaching strategies employed by community colleges align closely to those of universities. Chapter 1 explained that many of the policies and practices employed by community colleges are simply adopted from universities, even when those practices do not align well to community college populations (Kelly-Kleese, 2004; Ocean et al, 2018). Mitchell (2018) found that, across three community colleges in California, programs lacked culturally relevant curriculum for African American students. Coleman (2015) conducted a quantitative study which surveyed 1,300 faculty members across the state of Arkansas from both two-year and four-year institutions on how they valued and implemented nineteen unique teaching strategies. Her study indicated that community college faculty valued and implemented mnemonics more than their four-year peers; however, it was the

only significant difference on how two-year and four-year faculty viewed and used the nineteen teaching strategies. One might think that teaching strategies in community colleges would be as diverse as their student bodies, but Coleman's findings seem to indicate otherwise.

Conclusions

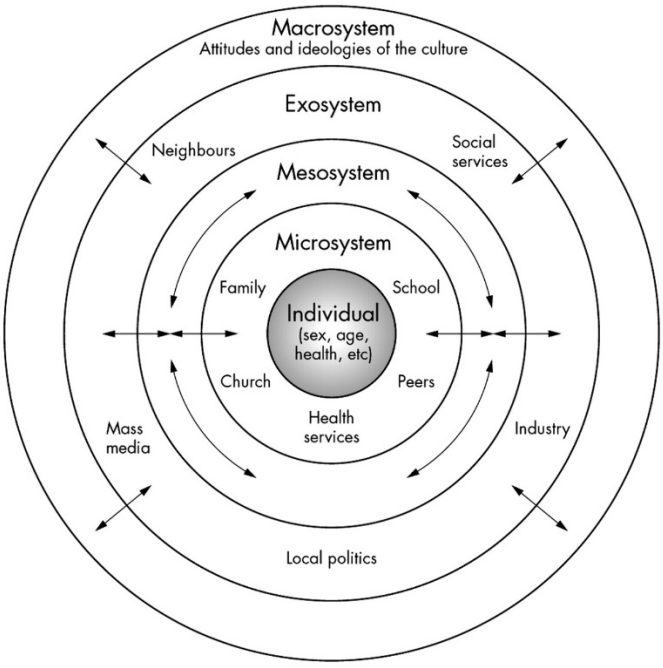
Historically, andragogy has been presented as set of assumptions for all adult learners (Hansman & Mott, 2010; Lee, 2003; Roberson, 2002; Sandlin, 2005); however, the literature reviewed in the creation of this conceptual framework indicate that there may be several factors that influence student preference for andragogical assumptions (Boland et al., 2011; Duff, 2019; Jaiu et al., 2002; Roessger et al., 2019; Roessger et al., 2020). While empirical data relating to andragogy has been difficult to obtain, recent research offers promising solution. Due to the many close resemblances between andragogy and the Readiness to Learn scale in the PIAAC survey, Roessger et al. (2020) used the RtL scale to measure the preference for andragogical assumptions among PIAAC participants. They found that as a country's ability to meet the basic and psychological needs of its citizens increased, so did its citizens' elaboration and motivation to learn. Their study also indicated that elaboration and motivation to learn are also influenced by age, gender, educational attainment, and cultural values. While their study showed evidence that people from western countries had a higher preference for andragogy than those from other countries, more research needs to be done to see how preferences for andragogy differ within countries, regions, and even different types of educational institutions. This study takes a step in that direction by using the RtL scale to measure the preference for andragogical assumptions among Arkansas community college students statewide.

Theoretical Framework: Ecological Systems Theory

This study will be guided by Bronfenbrenner's (1979) ecological systems theory. Ecological systems theory (also called ecological theory of development or ecology of human development theory) proposes that development occurs through complex interactions between individuals and five levels of their environment:

- The microsystem consists of immediate and intimate relationships. Microsystems are an individual's families, friends, classmates, coworkers, etc.
- The mesosystem represents the linkages and interactions between two or more microsystems. The mesosystem interactions explain why a student might behave poorly at school if there was an argument at home.
- The exosystem is an environment in which an individual is not immediately present, but by which the individual is still affected. For example, a student does not have direct contact with the Department of Education. However, policies created by the Department of Education impact a student's financial aid eligibility.
- The macrosystem is the furthest removed system, but certainly not the least influential. The macrosystem is made of social norms, cultural expectations, and belief systems of the larger environment surrounding an individual.
- Finally, the chronosystem represents the element of time, with the premise that time itself influences a person's development. Renn and Arnold (2003) explain that the evidence of importance of time in can be seen in a variety of ways. A parent's divorce may influence siblings differently based on the amount of time they have been alive, and the era in which a person grows up influences that person's beliefs and perspectives.

Bronfenbrenner (1979) compares the levels of the ecological system to Russian dolls, each level nested inside the next. Figure 3 shows how the levels work interdependently to influence the individual. Ecological systems theory provides a great perspective from which to view this study. It first considers the individual (their age, gender, race/ethnicity, college readiness, etc.) and then expands to consider how that individual's immediate (socioeconomic status) and expanded (culture) environments affect the individual's development.



Note: (McLaren & Hawe, 2005)

Figure 3
Bronfenbrenner's Ecological Theory of Development

While this theory is more widely used when examining child development, there have been some applications of the theory to higher education (Bluteau et al., 2017; Poch, 2003; Renn & Arnold, 2003; Rohlman, 2020). Bluteau et al. (2017) conducted a three-year study in which they followed the interactions of health and social care students participating in an online interprofessional learning pathway (IPLP). Researchers analyzed the discussion responses of individual students and found that student perspectives were different across disciplines. Even

though students were reviewing the same scenarios and case studies, their own backgrounds and previous experiences and training impacted the way they learned. Bluteau et al. (2017) reported,

> Online comments that represent the discourses present in discussion forums illustrate the interaction between microsystem, mesosystem, exosystem, and macrosystem influences at work within the context of the IPLP. (p. 423)

Renn & Arnold (2003) investigate previously conducted studies through the lens of ecological systems theory. They contend that the ecological systems theory helps to explain the role of peer culture in college as it relates to a student's individual and group racial identity. In analyzing a study of high school valedictorians, they point to a lack of adequate information about college options in the mesosystem as a reason why every single valedictorian in a Midwestern farming region chose to attend an in-state college.

Rohlman (2020) collected data on 484 students and 35 school districts in rural Arkansas to determine if individual student characteristics (individual), secondary school environment (microsystem), and/or secondary school letter grade assigned by the state (mesosystem) could help predict the likelihood of a student passing College English I at a rural community college in Arkansas. Her results indicated that a student's high school GPA and ACT score (both individual level predictors) had the most significance in explaining the likelihood of College English I completion.

Poch (2003) conducted a qualitative study of 35 transfer students (transferring from community college to a four-year institution) and found that how a student perceived their experience (positively or negatively) was greatly influenced by the mesosystem that existed between three of the student's microsystems (personal, structural, academic). Poch (2003) also states that to have "ecological validity" researchers should describe the environmental variables

that exist in their study and limit their conclusions as being applicable only to individuals who are experiencing similar environmental settings.

Knowles failed to limit his conclusions on andragogy in such a way. He drew his conclusions for all adult learners using a very limited scope of participants. He failed to consider how demographic characteristics such as age, race/ethnicity, and gender might influence a person's preference for learning, or how their socioeconomic status or level of college readiness might impact influence how they approach learning, or how their culture might form their values and ideas related to learning. Because development occurs within such an individualized and complex ecological system, each learner absorbs information differently. When considering the ecological theory of development, it seems unlikely that all adult learners will have the same preference for andragogical learning methods.

Research Questions and Hypotheses

This study is guided by six main research questions. Each question, along with its corresponding hypothesis and theoretical rationale, is found below:

Among Arkansas community college students,

Question 1

Is there a relationship between students' preferences for andragogical assumptions and their age, after controlling for race/ethnicity, gender, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?

H_1: There is a relationship between a student's age preference for andragogical assumptions. As age increases, the preference for andragogical learning will also increase.

Andragogy is a theory used specifically for teaching adult or mature learners. With this theory in mind, it stands to reason that as a learner's age increases, so will their preference for andragogical learning methods.

Question 2

Is there a relationship between students' preferences for andragogical assumptions and their race/ethnicity, after controlling for age, gender, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?

H_2: There is a relationship between preference for andragogical assumptions and a student's race. White students will have a higher preference for andragogical learning methods than other races.

Knowles created his assumptions because of his experience in working with white males. This study hypothesizes that white students will display higher preferences for andragogical assumptions than learners of other races.

Question 3

Is there a relationship between students' preferences for andragogical assumptions learning and their gender, after controlling for age, race/ethnicity, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?

H_3: There is a relationship between preference for andragogical learning methods and a student's gender. Males will have a higher preference for andragogical assumptions than females.

This hypothesis was also formulized based on the population Knowles observed when creating his andragogical assumptions.

Question 4

Is there a relationship between students' preferences for andragogical assumptions and their socioeconomic status, after controlling for age, race/ethnicity, gender college readiness, program type, class standing, cultural differences, and parents' educational attainment?

H_4: There is a relationship between preference for andragogical assumptions and a student's socioeconomic status. As socioeconomic status increases, the preference for andragogical learning methods will also increase.

Maslow's hierarchy of needs states that only after lower level physiological and safety needs are met will a learner pursue higher level needs like achievement and self-actualization. If self-actualization is a precursor for students preferring andragogical learning methods, then learners with lower socioeconomic status will not be as interested in those methods.

Question 5

Is there a relationship between students' preferences for andragogical assumptions and their level of college readiness, after controlling for age, race/ethnicity, gender, socioeconomic status, program type, class standing, cultural differences, and parents' educational attainment?

H_5: There is a relationship between preference for andragogical assumptions and a student's college readiness. Students who are college ready will have a higher preference for andragogical learning methods than those who are not college ready.

Maturity can mean more than one thing. While age is an indicator of physical maturity, it is not necessarily an indicator of emotional or intellectual maturity. Students who are not academically prepared enough to succeed in a college level class are likely also unequipped to succeed using andragogical assumptions.

Question 6

Is there a relationship between students' preferences for andragogical assumptions and their class standing, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, cultural differences, and parents' educational attainment?

H_6: There is a relationship between preference for andragogical assumptions and a student's class standing. Students who have achieved sophomore status or higher will have a higher preference for andragogical learning methods than those students who are still considered freshmen.

This hypothesis is drawn from the same logic as hypothesis five. As students complete more college credits, they will gain more knowledge, becoming more intellectual mature. Since andragogy is primarily for mature learners, these higher-level classmen should have a higher preference for andragogy.

Question 7

Is there a relationship between students' preferences for andragogical assumptions and their program type, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, cultural differences and parents' educational attainment?

H_7: There is a relationship between preference for andragogical assumptions and a student's program type. Students pursuing a workforce or technical degree or certificate will have a higher preference for andragogical assumptions than those pursing other types of educational programming.

Program type is a little more difficult to hypothesize. Students who are seeking a technical or workforce degree or certificate, and those who are not seeking a degree or certificate, are generally older than those students who are seeking a general education or

transfer degree or certificate. However, they are also more likely to be female, from a minority race/ethnicity, have a lower socioeconomic status, and be less academically prepared. This study hypothesizes these students will have a higher preference for andragogical assumptions, not because of the student characteristics, but because of the how the programming lends itself to andragogical assumptions.

Question 8

Is there a relationship between students' preferences for andragogical assumptions and their culture, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, class standing, and parents' educational attainment?

H_8: There is a relationship between preference for andragogical assumptions and a student's culture. A student's preference for andragogical learning will vary based on his/her geographic residence.

Bronfenbrenner's ecological systems theory described the incredibly complex context in which each learner develops. Each learner is surrounded by a unique combination of microsystems, mesosystems, exosystems, and macrosystems. And while everyone alive today shares the same chronosystem, each person is in a different life phase within that chronosystem. Micro- and meso- systems are certainly the easiest systems to identify, but the exo-, micro-, and chrono- systems all play a very important part of a person's development. Two people with very similar family, educational, and professional backgrounds (micro- and meso- systems) will have dissimilar beliefs, values, and learning preferences solely because they live in two culturally distinct environments (macrosystem). When making his andragogical assumptions, Knowles did not take into consideration how those with different beliefs and backgrounds might prefer to approach learning.

Question 9

Does age influence the relationship between gender and andragogical learning preferences?

H_9: There is a difference in student's preference for andragogical learning based on the interaction between the student's age and gender. More specifically, younger females will show a higher preference for andragogical learning than younger males and then the preferences between the two genders will even out as they age.

The literature on this subject diverges a bit. One study found that a younger age, females were more likely to be self-directed than males but that the differences leveled out as students aged (Reio & Davis, 2005), while another found that, initially, young women were less likely to be self-directed and then become more self-directed than their male counterparts aged (Roessger et al., 2019). As previously mentioned, this difference could be explained by the limitations of self-reported data (Reio & Davis) compared to direct observation (Roessger et al.). Since this study is also self-directed, the hypothesis is based on the data presented by Reio and Davis (2005). Since this study also deals with self-reported data, I hypothesize the results will be more like theirs.

Summary

Andragogy is a widely accepted model for teaching adults in the United States (Mews, 2020; Roberson, 2002; Sogruno, 2015), but little empirical research has been done to validate its effectiveness (Merriam & Bierema, 2014; Merriam et al., 2007; Taylor & Kroth, 2009). While the ecological theory of development does not directly oppose andragogy, it does provide insights that would cause speculation as to andragogy's relevance based on various individual and cultural characteristics. Culturally and academically diverse populations make up a large

portion of community college student bodies, which likely create varied preferences for andragogical assumptions across each institution. Institutions in Arkansas are of particular interest in this study. Unfortunately, the state continually performs poorly on educational outcomes (McCann, 2019; United States Census Bureau, 2019b). Could it be that traditional learning assumptions do not fit well with Arkansas students' preferences? Are there factors unique to each region of Arkansas that create further variance in students' preferences? While preferences for andragogical assumptions were previously difficult to gauge, they can now be measured using The Readiness to Learn scale in the PIAAC, as validated by Roessger et al., 2020. Using Roessger et al. as a model, this study will examine how individual and cultural differences relate to students' preferences for andragogical assumptions across Arkansas.

Chapter 3: Methodology

This chapter explains the methodology of the study, which seeks to answer the overarching question, "Is there a relationship between a student's preferences for andragogical assumptions and their age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and/or culture?" The study will also look at how age and gender interact within that relationship. Research questions and hypotheses are presented first, followed by a detailed description of who participated in the study, what was be measured, when the data was collected, where the study took place, and how the data was analyzed.

Research Questions and Hypotheses

This study was guided by nine main research questions:

Among Arkansas community college students,

Question 1

Is there a relationship between students' preferences for andragogical learning and their age, after controlling for race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, cultural differences, and parents' educational attainment?

$H_0$1: There is no relationship between preference for andragogical learning and a student's age: $b_{age} = 0$.

H_A1: There is a relationship between preference for andragogical learning and a student's age. As age increases, the preference for andragogical learning will also increase: $b_{age} > 0$.

Question 2

Is there a relationship between students' preferences for andragogical learning and their race/ethnicity, after controlling for age, gender, socioeconomic status, college readiness, class standing, program type, cultural differences, and parents' educational attainment?

$H_0$2: There is no relationship between preference for andragogical learning and a student's race: $b_{\text{American\_Indian/Alaska\_Native}} = 0$, $b_{\text{Asian}} = 0$, $b_{\text{Black/African\_American}} = 0$, $b_{\text{Hispanic/Latino}} = 0$, $b_{\text{Native\_Hawaiian/Pacific\_Islander}} = 0$.

H_A2: There is a relationship between preference for andragogical learning and a student's race. While preference for andragogical learning will vary based on race/ethnicity, white learners will have a higher preference for those methods than other races: $b_{\text{American\_Indian/Alaska\_Native}} < 0$, $b_{\text{Asian}} < 0$, $b_{\text{Black/African\_American}} < 0$, $b_{\text{Hispanic/Latino}} < 0$, $b_{\text{Native\_Hawaiian/Pacific\_Islander}} < 0$.

Question 3

Is there a relationship between students' preferences for andragogical learning and their gender, after controlling for age, race/ethnicity, socioeconomic status, college readiness, class standing, program type, cultural differences, and parents' educational attainment?

$H_0$3: There is not a relationship between preference for andragogical learning and a student's gender: $b_{\text{Female}} = 0$, $b_{\text{Unspecified}} = 0$.

H_A3: There is a relationship between preference for andragogical learning and a student's gender . Male students will have a higher preference for andragogical learning than female students: $b_{\text{Female}} < 0$, $b_{\text{Unspecified}} < 0$.

Question 4

Is there a relationship between students' preferences for andragogical learning and their socioeconomic status, after controlling for age, race/ethnicity, gender, college readiness, class standing, program type, cultural differences, and parents' educational attainment?

$H_0$4: There is not a relationship between preference for andragogical learning and a student's socioeconomic status: $b_{\text{Low}} = 0$.

H_A4: There is a relationship between preference for andragogical learning and a student's socioeconomic status. As socioeconomic status increases, the preference for andragogical learning will also increase: $b_{Low} < 0$.

Question 5

Is there a relationship between students' preferences for andragogical learning and their level of college readiness, after controlling for age, race/ethnicity, gender, socioeconomic status, class standing, program type, cultural differences, and parents' educational attainment?

H_05: There is not a relationship between preference for andragogical learning and a student's college readiness: $b_{Not\ College\ Ready} = 0$.

H_A5: There is a relationship between preference for andragogical learning and a student's college readiness. Students who are college ready will have a higher preference for andragogical learning than those who are not college ready: $b_{Not\ College\ Ready} < 0$.

Question 6

Is there a relationship between students' preferences for andragogical learning and their class standing after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, cultural differences, and parents' educational attainment?

H_06: There is not a relationship between preference for andragogical learning and a student's class standing: $b_{Freshman} = 0$.

H_A6: There is a relationship between preference for andragogical learning and a student's class standing. Students who are have successfully completed their freshman coursework will have higher preferences for andragogical assumptions than students who have not: $b_{Freshman} < 0$.

Question 7

Is there a relationship between students' preferences for andragogical learning and their program type after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, cultural differences, and parents' educational attainment?

$H_0$7: There is not a relationship between preference for andragogical learning and a student's program type: $b_{\text{Gen/Tech Education}} = 0$, $b_{\text{Non-Degree Seeking}} = 0$.

H_A7: There is a relationship between preference for andragogical learning and a student's program type. Students who are enrolled in a workforce or technical program will have a higher preference for andragogical assumptions than students enrolled in other types of educational programs: $b_{\text{Workforce/Technical Education}} > 0$, $b_{\text{Non-Degree Seeking}} < 0$.

Question 8

Is there a relationship between students' preferences for andragogical learning and their culture, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, class standing and parents' educational attainment?

$H_0$8: There is not a relationship between preference for andragogical learning and a student's culture: $b_{\text{ARDelta}} = b_{\text{NorthAR}} = 0$, $b_{\text{SouthwestAR}} = 0$, $b_{\text{CentralAR}} = 0$.

H_A8: There is a relationship between preference for andragogical learning and a student's culture: $b_{\text{ARDelta}} \neq 0$, $b_{\text{NorthAR}} \neq 0$, $b_{\text{SouthwestAR}} \neq 0$, $b_{\text{CentralAR}} \neq 0$.

Question 9

Does age influence the relationship between gender and andragogical learning preferences?

$H_0$9:There is not a difference in the student's preference for andragogical learning based on the interaction between the student's age and gender: $b_{\text{Age x Gender}} = 0$.

H_A9: There is a difference in student's preference for andragogical learning based on the interaction between the student's age and gender: $b_{\text{Age x Gender}} \neq 0$.

Methods

Study Design

The purpose of this study was to examine how age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and/or culture relate to the preference for andragogical assumptions of students enrolled in Arkansas community colleges, as well as whether or not age and gender interact within that relationship. This was a cross-sectional study, looking at a sample from the population at one point in time, and was analyzed using multiple linear regression. The dependent variable was preference for andragogical assumptions as indicated by a student's responses to Readiness to Learn questions. There were eight independent variables: age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and culture. These variables also served as control variables for questions in which they were not the main effect. All research questions of this study also had an additional control variable. The study controlled for parents' educational attainment level, as SES and parental educational level are highly correlated (Baum, Ma, & Payea, 2013; Carozza et al., 2010; Lareau et al., 2011). Controlling for parental educational attainment level (in addition to the other independent variables of the study) was to help reduce the likelihood of a Type I error.

Data was collected with an electronic survey using many of the best practices for internet surveys outlined in Dillman et al. (2014). Dillman et al. recognize four error types that must be minimized to produce quality surveys: coverage error, sampling error, nonresponse error, and measurement error. Table 8 outlines how these errors were taken into consideration when designing the survey.

Table 8
The Four Survey Error Types

Error type	How it occurs	How it was minimized
Coverage Error	The list used to draw the sample does not accurately represent the population	Arkansas community college students are the population of the study. The survey was sent to all community college students at 20 of the 22 colleges.
Sampling Error	The surveyor does not survey all members of the sample	All students at the participating colleges were included in the survey invitation.
Nonresponse Error	When the responses of those who chose not to participate are different from those who did	Emails sent employed the social exchange theory: *decreasing cost* by making the survey short and sending reminders; *increasing benefits* by explaining how the survey will be used and offering incentives; *establishing trust* by having the community colleges send the survey on my behalf and asking faculty members to inform students of the survey.
Measurement Error	When respondents are unable or unwilling to provide accurate answers	Questions were simple. Each section contained an explanation for why the data was necessary. Some questions allowed for an open-ended response in case responses offered did not fit. The most personal questions were saved for the end.

While Dillman et al. suggests mix-method survey designs, asking students to complete an electronic survey was the least intrusive and most efficient way to gather data. Due to the large geographic area being included in the sample, face-to-face interactions would have been resource intensive.

Study Setting

This study took place across 20 of the 22 community colleges in the state of Arkansas, attempting to capture the diversity that exists within the state. For this study, Arkansas was further divided into four regions: north, central, southwest, and delta. North Arkansas is home to five community colleges with poverty levels within those five counties ranging from 8.6% to 18.7%. Central Arkansas has three community colleges within the region with poverty levels within those three counties ranging from 16.6% to 17.9%. In southwest Arkansas, there are seven

community colleges with host-county poverty levels ranging from 18.2% to 20.6%. The delta houses five community colleges. Poverty levels in the delta for counties that hold a community college range from 16.5% to 35.6% (United States Census Bureau, 2020). Even using the regional divisions, large discrepancies still exist in the poverty levels within some of regions. The two community colleges that chose not to participate were in the central and delta regions.

Participants and Placement

Participants of this study were postsecondary college students at 20 of the 22 community colleges in Arkansas who are not concurrently enrolled in high school. According to data pulled using the Compare Institutions tool from the Integrated Postsecondary Education Data System (IPEDS), Arkansas community colleges had 46,649 students enrolled in the Fall 2017 semester. Of that number 57.19 % were enrolled part-time, 66.66% were white, 61.45% were female, and 68.63% were below the age of 25 (National Center of Educational Statistics, 2019). Of course, the average of a statewide population is not always the truest picture of the individual regions. These demographics vary greatly from institution to institution. For a quick comparison of the multiplicity that exists within the state, Table 9 below shows data from one community college in each of the four regions in the study: North Arkansas College (NorthArk) in the North Region, University of Arkansas Pulaski Technical College (UA-PTC) in the Central Region, South Arkansas Community College (SouthArk) in the South Region, and Arkansas State University Mid-South (ASU MS) in the Delta Region.

Table 9
2017 Demographic Data of One Community Colleges from each Region

Region	Fall 2017 Enrollment	Status (% Part-time)	Race/ Ethnicity (% Two Highest)	Gender (% Female)	Age (% Below 25)
North (NorthArk)	1821	41.30	86.6 White 6.75 Hispanic	60.08	71.83
Central (UA-PTC)	6038	58.58	43.92 White 40.66 Black	63.56	56.19
Southwest (SouthArk)	1481	56.92	57.87 White 32.41 Black	70.02	65.90
Delta (ASU MS)	1561	72.01	56.89 Black 32.54 White	59.83	74.89

Note: Data for table retrieved using Compare Institutions tool from IPEDS *(https://nces.ed.gov/ipeds/datacenter/InstitutionByName.aspx?goToReportId=1)*

With the help of each community college's registrar and/or institutional research department, all non-concurrent students enrolled in 20 of the 22 community colleges were provided a link to a survey for completion. Community colleges were given the option of emailing their students or posting the message to the students' Learning Management System (LMS). One community college elected to provide me a list of their postsecondary students so I could send the survey myself. At each institution all postsecondary students were contacted, and responses were collected through voluntary responses to the survey.

This study contained one continuous dependent variable, eight independent variables (one continuous, four dichotomous, and three with multiple categories) plus one additional control (with five categories). A power analysis using GPower software based on the number of predictors listed above (21) suggests a required sample size of 160 students ($\alpha = .05$; $\beta = .8$). Since more than 160 surveys were received, responses were stratified based on race/ethnicity in order to obtain a representative sample and a randomizer was used to select which students within each category were included in the study.

Materials

The study collected data using an electronic survey through Survey Monkey that measured preference for andragogical assumptions and captured demographic information. Preference for andragogical assumptions was measured using the Readiness to Learn items found in the Program for the International Assessment of Adult Competencies background questionnaire. The PIAAC Survey of Adult Skills is administered by the Organization for Economic Cooperation and Development (OECD) every 10 years to 5,000 people in each of the 40 participating countries. According to the OECD (2011a), prior attempts to capture an individual's learning preferences were either student-based or work-based approaches. Makers of the PIAAC Survey of Adult Skills wanted questions that were based on both approaches and as a result created the Readiness to Learn items currently used. Gorges et al. (2016) suggest that the RtL scale is really attempting to measure two different constructs simultaneously: motivation to learn and elaboration. Their findings indicate that the motivation to learn scale (using items 2, 4, 5, and 6 of the Readiness to Learn scale) produced a better fitting model in some countries than using the full model. However, Smith, Smith, Rose, and Ross-Gordon (2016) tested the RtL scale's reliability among U. S. adults and found it to be reliable. As outlined in Chapter 2, Roessger et al. (2020) validated that the two difference constructs measured in the RtL scale serve as a reliable instrument to measure preference for andragogical assumptions.

Demographic information was captured in order to compare preference for andragogical learning across various demographic types. Student information captured included age, race/ethnicity, gender, community college attended, program type, number of hours completed, Pell Grant eligibility, whether remedial classes were required, and highest level of education

completed by a household guardian. This information will be self-reported by the student. A copy of the survey is found in Appendix A.

Measures

The dependent variable in this study was preference for andragogical assumptions. Andragogy is a set of assumptions proposed by Malcolm Knowles indicating how adult learners prefer to learn:

- They need to know why they are learning;
- They have a psychological need for self-direction;
- They like to draw from personal experiences;
- They want to apply what they learn to real-life situations;
- They prefer curriculum that is problem-centered rather than content-focused; and
- They are internally motivated.

Preference for andragogical learning was measured using the Readiness to Learn (RtL) scale included in the background questionnaire of the PIAAC survey, as validated in the Roessger et al. (2020) study. This portion of the survey consisted of six questions with Likert-type response options ranging from 1 (not at all) to 5 (to a very high extent). An aggregate of the six questions' scores will be calculated, allowing for scores ranging from 6 to 30.

Age, captured in years, was a continuous variable. Students chose between one of seven race/ethnicity options (American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, White, or Multiracial or Multiethnic), one of three gender options (Male, Female, or Other where students who chose other had the option to provide their identified gender), and one of three program types (General Education or Transfer program, Technical or Workforce program, or Non-degree seeking). For

race/ethnicity, White students served as the reference group. For gender, the reference group was males. Socioeconomic status (SES), college readiness, and class standing were measured as dichotomous categorical variables. Socioeconomic status is the compilation of a student's material wealth and noneconomic characteristics such as social prestige and education (Hackman & Farah, 2008). Operationally, students who are eligible to receive a Pell grant will be considered to have low SES, while students not Pell eligible will be considered to have not low SES. Students with not low SES will serve as the reference group. College readiness is defined as the ability for a student to enroll and succeed in a for-credit college course without remediation. Students enrolled in a remedial math, reading, or English course will be considered not college ready (no), while students who enrolled in for-credit courses without remediation will be considered college ready (yes). The reference group for college readiness will be those students who are college ready. Class standing is the designation given to define a student's progress toward obtaining their degree. Students who have 29 hours or less are defined as freshmen, and students who have 30 hours or more are considered sophomores. Freshmen students will serve as the reference group.

Culture was also a categorical variable; however, it was divided into multiple categories. Carriere (2013) provides several definitions of culture, from the very simplistic: a group of individuals from the same ethnic group or geographic location; to much more complex: how individuals use their surrounding environments to make meaning of everyday ambiguity. While it may be simplistic in comparison to some of the other definitions, this study operationally defined culture based on the geographic location of the student's community college: North Arkansas, Central Arkansas, Southwest Arkansas, and the Arkansas Delta. Students in North Arkansas served as the reference category.

While not of direct interest in this study, parental education level is often known to be related to a person's socioeconomic status (Baum, Ma, & Payea, 2013; Carozza et al., 2010; Lareau et al., 2011). Because of this relationship, this study controlled for parental education level. This variable contained five categories: less than a high school diploma, high school diploma, some college/Associate's degree, Bachelor's degree, and advanced degree.

Data Collection

Data could not be collected until the Institutional Review Board (IRB) approval was given through the University of Arkansas's Office of Research and Innovation. In many cases, the community colleges also had IRB or cabinet approvals that were also necessary. Two of the community colleges declined to participate. Once all approvals were received, a message with a link to the electronic survey was sent via email or LMS posting to each non-concurrent student enrolled at the 20 participating community colleges in Arkansas. The survey was open for two weeks. Three days after the initial communication to students, an email was sent to faculty members informing them of the email and asking them to encourage their students to check their email or LMS dashboard for information on participating. A second email was sent to the students one week after the initial email. The timeframe for data collection was November 11, 2020 through November 24, 2020. (See Appendices for the survey and communications that were sent.)

To encourage participation in the survey, ten $20 Amazon gift cards were given at the end of the survey period. Students who wanted to be included in the drawing for the gift cards voluntarily gave their student email address at the end of the survey. The requirement for student email addresses is to lessen the chance of duplicate responses. Email addresses were separated from the survey responses before analysis was completed and permanently deleted once the

drawing was complete. Winners were drawn using a randomizer and contacted within one week of the close of the survey.

Data Analysis

According to McDonald (2014), multiple regression can be used when a study possesses only one dependent variable and at least two independent variables. This study had one dependent variable, preference for andragogical learning, and eight independent variables: age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and culture. Each independent variable also served as a control variable for the questions in which it was not the main effect. For linear models, there are a few assumptions that will need to be verified before making conclusions: linearity, homoscedasticity, multicolinearity and normality. Based on Field's (2018) recommendations for linear regression, linearity and homoscedasticity will be checked using a z-pred vs. z-resid plot. This is plot that shows the standardized residuals of the actual data against their predicted values. This plot should look like a random scatterplot. Any funneling could indicate a violation of homoscedasticity and any curving could indicate a violation of linearity. Normality will be checked by analyzing histograms and Q-Q plots. Statistical analysis for each research question was done using version 26 of IBM's SPSS Statistics software. Data was summarized through tables and graphs created through SPSS Statistic software, as well as through a narrative to explain the findings presented in the visual aids.

Internal and External Validity

Any time a study is done, researchers must consider the internal and external threats that might compromise the validity of their study. In this study confounding and selection are two threats to internal validity. Confounding occurs when an independent variable is mistakenly

given credit for effecting the dependent variable because another variable is in play but not taken into consideration (McDonald, 2014). For example, this study will attempt to answer the question, “Is there a relationship between socioeconomic status and a student’s preference for andragogical assumptions?” If the question were to end there, a statistically significant difference would likely be detected. However, it might be that the statistically significant result really was not because of socioeconomic status itself. As previously discussed, parental education level often influences a person’s socioeconomic status. It could, hypothetically, also impact a person’s preference for andragogical assumptions. Perhaps a student who was raised by a college educated parent learned a preference for andragogical assumptions from that parent. In this hypothetical situation, socioeconomic status was incorrectly identified as influencing andragogical learning preferences. To avoid these types of misidentifications, or confounding, this study includes a number of controls when searching for each main effect.

Selection is another threat to internal validity. The survey for this study will be sent to all postsecondary students at the 20 participating community colleges in Arkansas. However, there is no way to control which students do or do not complete the survey. Perhaps most students who voluntarily take surveys also have a higher preference for andragogical assumptions.

External validity is the extent to which a study is valid beyond the population it wishes to investigate. In this case, the population being studied is all postsecondary at the participating community college students in Arkansas. Just as it was for internal validity, selection is a concern for external validity. For external validity, though, the concern is not how accurately the participants reflect the population of the study, but rather, how accurately the participants of the study reflect the population beyond that of the study. It is one thing to assume that the participants of this study accurately reflect all community college students in Arkansas. It is

another thing entirely to assume that they accurately reflect all postsecondary community college students in Mississippi, or New York, or nationwide. Caution should be used when generalizing the results of a study beyond the population it was meant to capture.

Summary

This chapter provides a detailed methodology for the study at hand. The research questions, along with null and alternative hypotheses, were presented. The chapter then reviewed the study's design, setting, participants and placement, materials, measures, data collection, data analysis, and threats to internal and external validity. This is a cross-sectional study involving postsecondary community college students in Arkansas. A survey was sent to the target population which included both the Readiness to Learn questions from the PIAAC background questionnaire, as well as a few questions to capture demographic information necessary for the study: age, socioeconomic status, college readiness, class standing, program type, culture, and parental education level. Data was collected in the Fall 2020 semester and multiple linear regression was used to analyze the data. Internal and external threats to validity were identified and accounted for.

Chapter 4: Results

The primary purpose of this study was to determine if a relationship exists between an Arkansas community college student's preferences for andragogical assumptions and their age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and/or culture. The study also investigated how age and gender interact within that relationship. This chapter presents the findings of the study. In this chapter, I will briefly review the study setting, describe the data collection process, explain how the data was prepared for analysis, and provide data demographics. Results for each research question will then be presented. Concerns regarding reliability and validity will be discussed, and the chapter will conclude with a summary of key findings.

Study Setting and Data Collection

The initial hope of this study was to survey students from all 22 community colleges in Arkansas. However, two colleges declined to participate. The study was designed so that someone from each community college sent an email invitation to their students on my behalf. I sent the emails to the institutions' designees on the days they were scheduled. One college requested a modification to send me the directory information for their students so I would be the one to email the students directly. I contacted IRB and that modification was approved. The first email was sent on a Wednesday. On Monday of the following week, an email was sent to faculty members notifying them of the survey and asking them to inform their students. The final email reminder was sent to students two days later, one week from their initial email, and the survey closed one week after that. The survey collected each student's Readiness to Learn (RtL) score, along with academic and demographic data.

Data Demographics

The survey was intended to capture responses from postsecondary (non-concurrent) students. By the close of the survey, 1,817 students responded. While that may seem like a large number, based on my calculation, this equates to a low response rate, approximately 5.8 percent. Because I did not know the exact number of students the survey was sent to, I used the fall 2018 adult enrollment for Arkansas community colleges statewide, 31,364 (National Center for Education Statistics (NCES), 2020; Arkansas Division of Higher Education, 2020), to arrive at this estimated response rate. However, of those who did respond, the completion rate was extremely high, 96.4 percent. Ages of respondents ranged from 14 to 75. Based on the self-reported responses, 1,213 (66.8%) of respondents qualified for the Pell Grant, 551 (30.3%) did not qualify, and 53 (3%) were either unsure of their eligibility or chose not to respond. There were 324 (17.8%) male respondents, 1,410 (77.6%) females, 16 (0.9%) who identified as other, and 67 (3.7%) who chose not to respond. The racial/ethnic makeup of respondents was as follows: 14 (0.8%) American Indian or Alaskan Native, 26 (1.4%) Asian, 286 (15.7%) Black or African American, 133 (7.3%) Hispanic or Latino, 5 (0.3%) Native Hawaiian or other Pacific Islander, 1,229 (67.6%) White, 58 (3.1%) Multiracial/ethnic, and 66 (3.6%) declined to respond. Nearly half of the respondents (898, or 49.4%) indicated they were college ready. The other 919 (50.6%) had answers that indicated they were not college ready. For class standing, 1,101 (60.6%) students were freshman and the remaining 716 (39.4%) were sophomore or above. The majority of students (1,241, or 68.3%) were seeking a general education or transfer degree or certificate, while the remaining students were either seeking a workforce or technical degree or certificate (514, or 28.3%) or not seeking a degree or certificate (62, or 3.4%). Reponses were equally distributed from all regions of the state: 476 (26.2%) from the Central Region, 409

(22.5%) from the Delta Region, 521 (28.7%) from the Northern Region, 409 (22.5%) from the Southwest Region, and 2 (.1%) who failed to respond.

Upon review of the data demographics, I realized that some institutions had sent the survey to all learners instead of postsecondary students. Students under the age of 18 were moved from the dataset before any additional analysis was complete. Removing the concurrent population from the dataset resulted in 1,685 remaining responses.

Data Analysis

Because of the excessive number of responses, my first step was to create a representative subsample from which to conduct the analysis. Since the study revolves around an adult learning theory, andragogy, I decided to filter out any respondents under the age of 24. While Knowles himself never identified a certain age when one reaches adulthood, 24 years of age is commonly used in the literature to demarcate adult learners from traditional learners (Golubski, 2011). Age 24 is also the year students are considered independent for financial aid purposes (Federal Student Aid, 2021).

Removing students 23 or younger left 762 responses. Demographics for those responses are as follows: 529 (69.4%) Pell Grant eligible, 218 (28.6%) were not, and 15 (2.0%) were unsure; 112 (14.7%) male, 645 (84.6%) female, and 5 (0.01%) other; 7 (0.9%) American Indian or Alaskan Native, 8 (1.0%) Asian, 158 (20.7%) Black or African American, 19 (2.6%) Hispanic or Latino, 4 (0.5%) Native Hawaiian or other Pacific Islander, 525 (70.6%) White, and 27 (3.5%) Multiracial/ethnic; 375 (49.2%) College Ready, 387 (50.8%) Not College Ready; 345 (45.3%) Freshman, 417 (54.7%) Sophomore or above; 458 (60.1%) General Education or Transfer, 277 (36.4%) Workforce or Technical, 27 (3.5%) Non-degree Seeking; 220 (28.9%) from the Central

Region, 176 (23.1%) from the Delta Region, 211 (27.7%) from the Northern Region, and 155 (20.3%) from the Southwest Region.

The next step was to consider missing data. In the subsample, 15 responses contained missing data in one or more fields. These 15 respondents represented just under two percent of the total. While there is concern that listwise deletion causes biased estimates, Graham (2009) argues that in cases where missing data is less than five percent, the bias created is minimal. Therefore, these 15 cases were removed.

After missing data were removed, I looked at categories that would need to be condensed, if possible. Simmons et al. (2011) state that, "samples smaller than 20 per cell are simply not powerful enough to detect most effects" (p.1363). When reviewing the data, four race/ethnicity subcategories were found with less than 20 responses: American Indian or Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander each had less than 10 responses and Hispanic or Latino had 19. For these cases, I condensed the categories of American Indian or Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander into an "Other" subcategory for a total of 19 responses. I left Hispanic or Latino as its own subcategory, also with 19 responses. While these two categories did not meet the minimum recommended by Simmons et al., I felt that it was worth continuing with 19 in order to preserve the additional subcategory. For gender, Other only had 5 responses. Unfortunately, in this case it was not appropriate to collapse these responses into one of the other categories, so these five responses were also removed from the dataset. These five responses represented another 0.5% of the responses and brought the final dataset to 742.

Once I prepared the dataset, I drew from it a representative subsample. To create a representative sample that included at least 20 responses in the minority subcategories, I needed

to draw a larger sample than my a priori power analysis required (*n*=432). Even then, the percentages did not match exactly due to the limited number of responses in some of the subcategories. This caused some subcategories to be overrepresented and others to be underrepresented. Table 10 compares the subsample numbers and percentages to the actual racial/ethnic makeup of Arkansas community college students based on Fall 2018 IPEDS data (National Center for Education Statistics, 2020). To construct the subsample, the data were sorted by race/ethnicity and a random number generator was used to select the participants from each subcategory.

Table 10
Comparison of Fall 2018 Demographics of Arkansas Community Colleges and the Study's Representative Sample

	State		Sample	
Race/Ethnicity	Number	Percentage	Number	Percentage
Black or African American	7,553	17.3	88	20.4
Hispanic or Latino	3,652	8.4	19	4.4
Multiracial or Multiethnic	1,283	2.9	20	4.6
Other	2,156	4.9	19	4.4
White	29,020	66.5	286	66.2

After the 432 participants were selected, I found that one of the other subcategories did not meet the $n \geq 20$ requirement, as there were only 12 non-degree seeking (NDS) students in the randomly pulled sample. To remedy that, I used the random number generator to select eight additional NDS students and added them to the sample for a total sample of 440. Table 11 shows the descriptive statistics for the sample.

Table 11
Descriptive Statistics

Demographic Category	*n*
Total Cases	440
Race/Ethnicity	
Black or African American	89
Hispanic or Latino	19
Multiracial or Multiethnic	20
Other	19

Table 11 Cont.

Demographic Category	*n*
White	293
Gender	
Male	66
Female	374
Socioeconomic Status	
Low	309
Not Low	66
College Readiness	
College Ready	215
Not College Ready	225
Class Standing	
Less than 30 hours completed	200
At least 30 hours completed	240
Program Type	
General or Transfer	154
Non-degree Seeking	20
Workforce or Technical	266
Culture	
Central Region	133
Delta Region	101
Northern Region	124
Southwest Region	82

Because the subsample exceeds the size recommended by my power analysis, my analysis will have a greater ability to detect small statistical effects. To demonstrate the practical significance of these effects, I present the squared semi-partial correlation coefficients (represented by sr^2), illustrating for each predictor the unique percentage of variance in RtL. It is also worth noting that age was mean-centered in order to calculate a meaningful intercept value.

Before analyzing the data, I needed to verify several assumptions to ensure linear regression was an appropriate model for my dataset. I checked the assumption of linearity by reviewing a scatterplot of all variable combinations. The scatterplot confirmed a linear relationship between the variables. Multicolinearity was checked by reviewing the correlation coefficients for each variable. Since all values in the multicolinearity matrix were below .9, the assumption of multicollinearity was not violated. Homoscedasticity was checked using a plot of

z-predicted versus z-residual values. This plot did not reveal any concerns related to homoscedasticity.

Once the assumptions were checked, I analyzed the model and reviewed the case-wise diagnostics. Leys et al. (2013) cited that many researchers use the mean plus or minus 2, 2.5, or 3 times the standard deviation to identify and remove outliers. Since removing outliers three standard deviations from the mean is the most conservative, that is what I looked for in my diagnostics. I found that two cases fell more than three standard deviations away from their predicted value and they were removed from dataset and the model was rerun before interpreting the results. While this was conservative as far as removing outliers go, some believe a better method is to use the Median Absolute Deviation method (Leys et al., 2013) and still others believe many researchers remove outliers is to increase their chances of significant results (Simmons et al., 2011). To ensure removing outliers was not a threat to the study's validity, I compared the results of the model with and without the outliers. No substantive differences were found in the two models.

Results

For research questions 1-8, all variables were added into the multiple regression model with the Readiness to Learn score set as the dependent variable. Results for the first eight research questions immediately follow.

Hypothesis 1

Hypothesis 1 stated that a relationship exists between age and preferences for andragogical assumptions after controlling for gender, race/ethnicity, socioeconomic status, college readiness, class standing, program type, culture, and parent educational attainment. No

significant relationship between age and preference for andragogical assumptions was found, b = .006, sr^2 = .000, SE = .02, t = -.376, p > .05, 95% CI:[-.04, .03].

Hypothesis 2

Hypothesis 2 stated that a relationship exists between race/ethnicity and preferences for andragogical assumptions after controlling for age, gender, socioeconomic status, college readiness, class standing, program type, culture, and parent educational attainment. Table 12 displays the results for Hypothesis 2.

Table 12
Relationship Between RtL Score and Race/Ethnicity

Race Ethnicity	*b*	sr^2	SE	*t*	95% Lower Confidence Interval (CI)	95% Upper Confidence Interval (CI)
Black or African American	.85*	.010	.41	2.09	.05	1.65
Hispanic or Latino	-.94	.003	.79	-1.20	-2.49	.61
Multiracial or Multiethnic	.01	.000	.77	.01	-1.51	1.53
Other	1.06	.004	.77	1.38	-.45	2.58
White (reference)						

Note: *p < .05

Black or African American was the only race/ethnicity to display a significant relationship with andragogical assumptions, b = .85, sr^2 = .01, SE = .41, t = 2.09, p = .037, 95% CI:[.05, 1.65].This means that after controlling for age, gender, socioeconomic status, college readiness, class standing, program type, culture, and parental educational attainment, black students had .85-point higher preference for andragogical learning that white students. While statistically significant, the value of sr^2 indicates the effect is small.

Hypothesis 3

Hypothesis 3 stated that a relationship exists between gender and preferences for andragogical assumptions after controlling for age, race/ethnicity, socioeconomic status, college readiness, class standing, program type, culture, and parent educational attainment. A significant

relationship was found between gender and preference for andragogical assumptions, b = -1.13, sr^2 = .01, SE = .445, t = -2.53, p = .012, 95% CI:[-2.00, -.25]. This means that after controlling for age, race/ethnicity, socioeconomic status, college readiness, class standing, program type, culture, and parental educational attainment, female students had 1.13-point lesser preference for andragogical learning that male students. As with race/ethnicity, the value of sr^2 indicates a small effect.

Hypothesis 4

Hypothesis 4 stated that a relationship exists between socioeconomic status and preferences for andragogical assumptions after controlling for age, race/ethnicity, gender, college readiness, class standing, program type, culture, and parent educational attainment. No significant relationship was found between socioeconomic status and preference for andragogical assumptions, b = .60, sr^2 = .01, SE = .37, t = 1.61, p > .05, 95% CI:[-.13, 1.32].

Hypothesis 5

Hypothesis 5 stated that a relationship exists between college readiness and preferences for andragogical assumptions after controlling for age, race/ethnicity, gender, socioeconomic status, class standing, program type, culture, and parent educational attainment. No significant relationship was found between college readiness and preference for andragogical assumptions, b = -.03, sr^2 = .000, SE = .31, t = -.09, p > .05, 95% CI:[-.64, .59].

Hypothesis 6

Hypothesis 6 stated that a relationship exists between class standing and preferences for andragogical assumptions after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, culture, and parent educational attainment. No significant

relationship was found between class standing and preference for andragogical assumptions, b = .54, sr^2 = .007, SE = .32, t = 1.71, p > .05, 95% CI:[-.08, 1.16].

Hypothesis 7

Hypothesis 7 stated that a relationship exists between program type and preferences for andragogical assumptions after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, culture, and parent educational attainment. Table 13 displays the results for Hypothesis 7. No significant relationship was found between program type and preferences for andragogical assumptions.

Table 13
Relationship Between RtL Score and Program Type

Program Type	*b*	sr^2	SE	*t*	95% Lower CI	95% Upper CI
Gen Ed or Transfer (reference)						
Workforce or Technical	-.29	.002	.33	-.87	-.94	.36
Non-degree Seeking	-.48	.001	.77	-.62	-2.00	1.04

Hypothesis 8

Hypothesis 8 stated that a relationship exists between culture and preferences for andragogical assumptions after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and parent educational attainment. Table 14 displays the results for Hypothesis 8. No significant relationship was found between culture and preferences for andragogical assumptions.

Table 14
Relationship Between RtL Score and Culture

Program Type	*b*	sr^2	SE	*t*	95% Lower CI	95% Upper CI
Northern Region (reference)						
Central Region	-.25	.001	.42	-.58	-1.08	.59
Delta Region	.26	.001	.46	.56	-.65	1.16
Southwest Region	.23	.001	.48	.48	-.71	1.16

Hypothesis 9

Hypothesis 9 stated that age and gender interact to impact a student's preference for andragogical assumptions. A new model was run to test for this interaction. For the new model, the only variables included were age, gender, and race/ethnicity. Because one of the variables from race/ethnicity had a significant result, all variables from the category remained in the new model. A new variable was also added, Age x Gender. The second model was also analyzed using linear regression. No significant relationship was found between the interaction of age and gender with a student's preference for andragogical assumptions, b = -.004, sr^2 = .000, SE = .037, t = -.12, p > .05, 95% CI:[-.076, .067].

Readiness to Learn

The dependent variable in this study was Readiness to Learn. The score for this variable was calculated based on students' responses to six questions which connect with the six assumptions of andragogy. Students answered these questions on a Likert scale of 1 to 5, allowing aggregate scores of 6 to 30. Table 15 provides average score for each of the independent variables in the study.

Table 15

RtL Scores by Demographic Categories

Demographic Category	*n*	Average RtL Score
Race/Ethnicity		
Black or African American	89	25.36
Hispanic or Latino	19	24.00
Multiracial or Multiethnic	20	24.53
Other	19	25.37
White	293	24.47
Gender		
Male	66	25.44
Female	374	24.53
Socioeconomic Status		
Pell Eligible	309	24.75
Not Pell Eligible	66	24.49

Table 15 Cont.
RtL Scores by Demographic Categories

Demographic Category	*n*	Average RtL Score
College Readiness		
College Ready	215	24.67
Not College Ready	225	24.67
Class Standing		
Freshman	200	24.43
Sophomore or Above	240	24.87
Program Type		
General or Transfer	154	24.74
Non-degree Seeking	20	24.15
Workforce or Technical	266	24.61
Culture		
Central Region	133	24.47
Delta Region	101	24.90
Northern Region	124	24.62
Southwest Region	82	24.79

Averages for the aggregate RtL Score range from a low of 24.00 (Hispanic/Latino) to 25.44 (Male). These scores indicate that even for Hispanic/Latino students, who had the lowest average score overall, andragogical assumptions fit their personal preferences to a high extent.

Concerns of Validity and Reliability

Chapter 3 mentioned selection as a threat to internal validity. In this study, I had no control over who would choose to respond to the survey invitation. I used several methods to try and minimize the perceived costs and maximize the perceived rewards of participation in hopes of drawing a diverse sample, but despite my best efforts, it is possible that my study was impacted by nonresponse error, which occurs when those who chose not to participate in the survey would have different responses than those who did (Dillman et al., 2014). This error also effects the study's external validity.

Additionally, there were two decisions I made during the data analysis stage that could influence the study's validity: collapsing variables and keeping cells of less than 20. Due to the

number of responses within some of the race/ethnicity variables, it was necessary to collapse them into an Other category in hopes that a larger category could detect effects. Unfortunately, anytime variables are collapsed, the ability to distinguish between those groups is lost. Losing the ability to distinguish between groups is not ideal, so in order to preserve one of the variables, Hispanic or Latino, I chose to create two groups with less than 20 cells (19 in each instead of having 38 in Other). It is possible that this decision effected the study's ability to detect effects for those two categories.

Finally, it is always important to consider the source of information. For this study, all responses were self-reported. While this study did not ask any overly sensitive questions, self-reported data often lends itself to concerns of reliability and validity due to two main sources: random and systematic error (Teye & Peaslee, 2015). Random errors are what their name implies, inaccurate responses that happen for random reasons, misinterpretation of the questions or inadvertently choosing the wrong response. Systematic errors, however, are those that occur when a participant provides false information (over- or under-estimating) due to either an inaccurate self-view or because they feel a particular response is more socially desirable (Teye & Peaslee, 2015). It is possible that this study was affected by random and/or systematic errors. For this and all the previous reasons mentioned, I recommend using extreme caution in generalizing these results.

Summary

The findings outlined above answered the nine research questions of this study. Two linear regression models were run. The first model answered research questions 1-8 which sought whether a relationship exists between a community college student's age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and/or culture and

their preference for andragogical assumptions. The second model answered the ninth research question regarding whether age and gender interact within that relationship.

Results of the first model did not support the alternative hypotheses that a relationship exists between age, socioeconomic status, college readiness, class standing, program type, and/or culture and a student's preference for andragogical assumptions. Therefore, for research questions 1, 4, 5, 6, 7, and 8, the null hypothesis is supported. The results did, however, support the alternative hypothesis for question 3, that a relationship exists between gender and preference for andragogical assumptions. The results indicate the females have a lower preference (b = -1.13) for andragogical assumptions than males. Therefore, the alternative hypothesis for research question 3 is supported. The results allow for a partial rejection of the null hypothesis for research question 2. A significant relationship was found to exists between Black or African American students and preference for andragogical assumptions. Interestingly, the results indicate that Black or African American students have a slightly higher preference (b = .85) for andragogical assumptions than White students. This is contradictory to what literature indicated and to what I hypothesized, as well; so, while the results allow for the rejection of the null hypothesis, they do not support the alternative hypothesis. For all other races/ethnicities, no relationship was found.

The study failed to find evidence to support the alternative hypothesis for question 9, as well. This indicates that there is no interaction between age and gender and a student's preference for andragogical assumptions. In Chapter 5, I will provide a summation of the study, discuss conclusions drawn, consider limitations, and make recommendations for future research and practice.

Chapter 5: Discussion

This chapter first provides an overview of the study. It then presents conclusions and implications drawn from the findings. It provides the study's limitations, discusses the findings within the context of the literature, makes recommendations for future research and practice, and concludes with a final summary.

Study Overview

Problem and Purpose

Community colleges were created to provide a wide variety of educational opportunities to a diverse group of students. As a result, they have numerous missions working simultaneously, which include providing remedial and basic education, vocational training and workforce development, four-year transfer programs, and services to the community (Beach, 2010). The students who enroll at community colleges are, in general, older, more ethnically and racially diverse, and from lower socioeconomic backgrounds than students who enroll in four-year institutions (Dassance, 2011; Herideen, 1998).

Despite having a unique student population, community colleges have traditionally been considered part of the same discourse community as four-year institutions – higher education – causing them to adopt many of the same policies and practices these four-year institutions employ (Kelly-Kleese, 2004). Andragogy is one such practice community colleges have adopted as part of the higher education discourse community (Wilson et al., 2015). The practice of andragogy differs from traditional teaching practices in substantive ways. It employs methods like simulations and case studies rather than rote memorization. Educators may work to initiate class discussions and ask students to learn from one another, rather than from a traditional lecture format.

Still, the question remains whether andragogical methods are a preferred way of learning for all adult students. Many who criticize andragogy do so because it fails to consider issues related to gender (Sandlin, 2005), race (Duff, 2019), socioeconomic status, and culture (Hansman & Mott, 2010; Lee, 2003; Sandlin, 2005). Sandlin examined adult education using a cultural studies framework. She suggested that adult education has become commodified and that andragogy has become a preferred approach, not because it is useful for producing learning, but because it is successful in selling the commodity. Duff (2019) concluded that andragogy is ultimately a poor fit for Black men because it fails to address certain obstacles they face (identity development, mass incarceration, and racism). Lee drew a similar conclusion, stating that Knowles overgeneralized the characteristics of the white, male, upper-middle class population when drawing his conclusions and in doing so marginalized other social groups.

Another criticism of andragogy is that it lacks empirical evidence to support it (Merriam et al., 2007; Taylor & Kroth, 2009). Historically, this lack of evidence was due to the absence of a reliable tool to measure preferences for andragogical assumptions. However, Roessger et al. (2020) identified many similarities between andragogical assumptions and the Readiness to Learn (RtL) scale included in the Program for the International Assessment of Adult Competencies (PIAAC) survey. Through a study of their own, they were able to validate the RtL scale as an acceptable tool to measure preference for andragogical assumptions and found that, on a global scale, preference for andragogical assumptions varied based on age, gender, educational level, occupational skill level, culture, country of origin, and ability of the country to meet basic needs. In many ways, my study was an extension of the Roessger et al. (2020) study. Instead of looking globally, this study examined the preference for andragogical assumptions in Arkansas community college students.

As an Arkansas native and an employee of one of the state's community colleges, I have a vested interest in the success of these students. Unfortunately, Arkansas has not done well educationally relative to other states, ranking in the bottom 10 states for the last 15 years for the percentage of people 25 years or older with high school diploma, and ranking even worse when considering the people 25 years or older who have attained a bachelor's degree (United States Census Bureau, 2019b). How do we improve these outcomes?

Research indicates that accounting for learners' preferences can affect learning performance (Jones et al., 2019; Onder & Silay, 2016; Roessger, 2013). To better help our students, we need a better understanding of how they prefer to learn, which is what this study attempted to provide, specifically as it relates to students' preferences for andragogical assumptions.

Research Questions

Among Arkansas community college students,

1. Is there a relationship between students' preferences for andragogical assumptions and their age, after controlling for race/ethnicity, gender, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?
2. Is there a relationship between students' preferences for andragogical assumptions and their race/ethnicity, after controlling for age, gender, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?
3. Is there a relationship between students' preferences for andragogical assumptions learning and their gender, after controlling for age, race, socioeconomic status, college readiness, program type, class standing, cultural differences, and parents' educational attainment?

4. Is there a relationship between students' preferences for andragogical assumptions and their socioeconomic status, after controlling for age, race/ethnicity, gender college readiness, program type, class standing, cultural differences, and parents' educational attainment?
5. Is there a relationship between students' preferences for andragogical assumptions and their level of college readiness, after controlling for age, race/ethnicity, gender, socioeconomic status, program type, class standing, cultural differences, and parents' educational attainment?
6. Is there a relationship between students' preferences for andragogical assumptions and their class standing, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, cultural differences, and parents' educational attainment?
7. Is there a relationship between students' preferences for andragogical assumptions and their program type, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, cultural differences and parents' educational attainment?
8. Is there a relationship between students' preferences for andragogical assumptions and their culture, after controlling for age, race/ethnicity, gender, socioeconomic status, college readiness, program type, class standing, and parents' educational attainment?
9. Does age influence the relationship between gender and andragogical learning preferences?

Literature Review

Created by Malcolm Knowles, andragogy has six main assumptions related to how adults prefer to learn: need to know, self-concept, foundational experiences, readiness to learn, learning orientation, and motivation to learn. Andragogy is a widely accepted model for teaching adults across multiple disciplines (Chan, 2010; HRDevelopmentInfo.com, 2019; Roberson, 2002).

Still, much research indicates that individuals' preferences for these assumptions may vary based on several characteristics. Andragogy's assumption that learners develop a self-directed self-concept as they age is supported by several studies (Botha & Coetzee, 2016; Reio & Davis, 2005; Roessger et al., 2019). Reio and Davis and Roessger et al. found that older adults have higher levels of self-direction than younger adults. Both studies also found that age interacts with gender and self-concept. King-Spezzo et al. (2020) found that female students preferred higher levels of teacher support, thus displaying lower preference for self-direction.

Some speculate that andragogy is a poor fit for students of color (Duff, 2019; Lee, 2003). Maslow (1943) believed that people would not be motivated to pursue higher level needs, such as self-actualization, until their lower level needs, such as adequate food and shelter, were met. Knowles saw andragogy as a way to achieve self-actualization (Elias & Merriam, 2005), so students who struggle with meeting their basic needs may be less likely to prefer andragogical assumptions. Knowles also described andragogy as a preferred method for teaching mature learners. College readiness and class standing are two ways to measure a student's academic maturity. Workforce programs have many characteristics of andragogy embedded into the curriculum, which may indicate (after controlling for other variables) that students who enroll in these programs may have higher preferences for andragogical assumptions. Finally, cultural differences across the state could also lead to varying levels of preference for andragogy.

Current criticisms against andragogy rely on theories to support their arguments. That is because, until recently, we did not have a tool with which to empirically measure preference for andragogical assumptions. In 2011, the Organization for Economic Cooperation and Development began the first round of data collection for the Program for the International Assessment of Adult Competencies (PIAAC). The PIAAC survey included a background

questionnaire that contained a section on Readiness to Learn (RtL). This section asked six questions that closely align with the six assumptions of andragogy. In 2020, Roessger et al. conducted a factor analysis and confirmed that the RtL scale found in the PIAAC survey was a reliable instrument to measure preference for andragogical assumptions. They then analyzed the results of the PIAAC survey to find that preference for andragogical assumptions were higher for younger adults, males, those with higher education and occupational skill levels, those from western countries, and those from countries which can better meet the basic needs of its citizens. These results are compelling and led me to question what these results could mean on a more local scale.

Community colleges are very diverse, both in population and programming. Community college students come from a wide array of backgrounds, but statistics tell us that on average, they are older, more ethnically and racially diverse, come from lower socioeconomic backgrounds, and more likely to be first generation and less academically prepared than those entering a four-year institution. These students also enroll in college with a multitude of motives. Some want to learn basic literacy skills or learn English as a second language. Others enroll hoping to transfer to a four-year institution. Some are looking to earn a degree or certificate that provides them with skills necessary for employment. Others enroll not to enter the workforce, but to enhance their existing skills for workforce advancement.

Community colleges are great amalgamations of students. Despite the differing courses and concentrations they may choose, they are all hoping to improve their lives through education. As such, community colleges must offer a large variety of programs and services to accommodate these students. The question is whether andragogy really is a universal, one-size-

fits-all learning method, or if community colleges should consider employing a variety of methods to better serve their heterogenous student population.

Bronfenbrenner's (1979) ecological systems theory proposes that development occurs through complex interactions that occur between an individual (age, race, gender, etc.) and five levels of their environment: microsystem (family, friends, coworkers, etc.), mesosystem (the linkage between two or more microsystems), exosystem (institutions that enact policies that affect an individual, such as employers, schools, governmental agencies, etc.), macrosystem (social norms, cultural expectations, belief systems, etc.), and the chronosystem (the element of time within the student's development). In other words, learning does not exist in a vacuum. Students do not enter the classroom as a blank canvas but as a work in progress, and teachers must consider the student's existing environment to maximize development. Poch (2003) argues that researchers must consider their results based upon the ecological system variables that existed within their study and limit their conclusions based on those conditions. Andragogy was not limited in this way, and thus, has become the object of scrutiny over the years.

Methodology

This study used multiple linear regression to answer its nine research questions. Data was collected via an online survey sent to all postsecondary students at 20 of the 22 community colleges in Arkansas. The survey was open for two weeks and had 1,817 responses. Responses for students under the age of 24 were removed, as were incomplete responses. This left 762 responses from which to create a representative subsample. To create a representative subsample, I needed a number much larger than what my a priori power analysis required, 432 responses instead of 160. Because my subsample exceeded the recommended size of the power analysis, I

also included the squared semi-partial correlation coefficients for each variable to illustrate their practical significance.

Findings

The findings of this study answered its nine research questions. Seven of the nine hypotheses were not supported by the findings. Preference for andragogical assumptions was not significantly different based on age, socioeconomic status, college readiness, class standing, program type, or culture. There was also no indication that age and gender interact within preference for andragogical assumptions.

However, the study did indicate the preference for andragogical assumptions may differ based on two of the study's variables: race/ethnicity and gender. Hypothesis two stated that there is a relationship between preference for andragogical assumptions and race/ethnicity. This hypothesis was partially supported. A significant difference was found when comparing black students and white students. However, the result of this difference was surprising, as the responses indicated that black students have a slightly higher (.85 points on the RtL scale) preference for andragogical assumptions than their white peers. My hypothesis stated that white students would have the higher preference. No significant relationship was found between preference for andragogical assumptions and the other race/ethnicity variables. Hypothesis three stated that a relationship exists between preference for andragogical assumptions and gender. This hypothesis was supported by the study's findings. Females scored 1.13 points lower on the RtL scale, indicating that female students had a slightly lower preference for andragogical assumptions than their male peers. For both variables (race/ethnicity and gender), the squared semi-partial correlation coefficient was .01, which represents a small effect.

Conclusions

The findings of this study indicate that, among Arkansas community college students, there is little variance in preference for andragogical assumptions. The study was established on a great deal of literature that speculates reasons why andragogy is not an appropriate one-size-fits-all model (Duff, 2019; Hansman & Mott, 2010; Lee, 2003; Sandlin, 2005). The only empirical evidence I found which addressed all six of andragogy's assumptions validated those concerns on a global scale (Roessger et al., 2020). Roessger et al. found that preference for andragogical assumptions did indeed vary based on age, gender, education level, occupational skill level, culture, country of origin, and ability of the country to meet basic needs. Again, these results were based on a global population, making it difficult for local educators to infer what the results might mean for them.

This study was conducted to inform Arkansas community college educators and administrators. The results indicate that, within Arkansas community colleges, preference for andragogical assumptions is high. The readiness to learn component of my survey consisted of six questions, each relating to student preference for specific andragogical assumptions. The average score of the representative subsample was 24.62. This means that the average response for each question was "To a high extent." The findings indicate that the average score was not significantly different based on age, socioeconomic status, college readiness, program type, class standing, or cultural difference. The findings also indicate that even where the results were statistically significant (gender and race/ethnicity), the practical effect of such differences is small. This information leads me to conclude that andragogy is a good fit for Arkansas community college students.

Limitations

This study was designed with several limitations relating to the study setting and data collection processes. First, the setting of the study was limited to community college in Arkansas. This population was of interest to me due to my personal background and career choice. My hope was that this study would be useful to community college administrators and educators in Arkansas in order to improve educational outcomes across the state. Caution should be used when generalizing results beyond the study's population.

Another limitation was in data collection. Data was collected using a convenience sample. Convenience samples often result in nonresponse errors (Dillman et al., 2014). Several tactics were employed in an effort to reduce the nonresponse error: the survey was sent to all postsecondary students at all participating schools, emails sent utilized social exchange theory in an effort to increase responses, and an incentive drawing was offered in hopes of capturing responses from those that might not have responded based on the social exchange theory. Still, it is possible that those who chose not to respond to the survey would have had different responses from the ones who did.

The convenience sample approach also created limitations in the sample demographics. While the sample was fairly representative of statewide race/ethnicity enrollment, there was still a low non-white response rate, which may have prevented the study from having the power it needed to detect significance among the differing race/ethnicity groups. Another example of the limitations in the sample demographics is related to gender. Because only five adult students identified as Other, I was only able to include to two genders in my data analysis.

Lastly, data was self-reported using an online survey. While this method allowed me to gather many responses quickly, it did not allow students the opportunity to ask clarifying

questions before responding. Students may have misinterpreted questions, resulting in random errors; or, they may have believed that certain answers were more socially desirable than others, resulting in systematic errors (Teye & Peaslee, 2015). Therefore, results of this study were limited based on how well students understood the questions and how honestly they responded.

Discussion

The results of this study were surprising, and honestly, a bit disappointing. The further I researched, the more certain I was that my hypotheses were correct. The literature I reviewed indicated I was headed in the right direction. I fully expected to find statistically and practically significant results showing that preference for andragogical assumptions was different based on age, gender, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and cultural differences. I also thought, based on existing literature, that age would influence the relationship between that preference and a student's gender. As soon as I ran the model, I jumped straight to the p-values excited to analyze the results that could forever change the policies and practices of adult education. That is, after all, the hope of every doctoral student for their respective field, is it not?

Age, Gender, and the Relationship Between Them

On most levels, my results did not meet my expectations. The findings indicated no relationship between age and andragogy. This is contrary to other studies' findings that as age increases, so does preference for the andragogical assumption of a self-directed self-concept (Botha & Coetzee, 2016; Reio & Davis, 2005; Roessger et al., 2019). The findings also failed to align with the findings of the PIAAC survey study, which show that the youngest age group reported the highest preference for andragogical assumptions, while the oldest age group had the lowest preference (Roessger et al., 2020). So, the existing literature indicates that older

individuals have higher levels of self-direction but lower preferences for andragogical assumptions as a whole, while my findings failed to detect any relationship. Perhaps this simply means that for community college students, age truly is not a factor in determining preference for andragogical assumptions. However, Roessger et al. (2019) conducted their self-concept study at a community college, so perhaps not. I fear the limitations of my study are coming into play.

There was also no indication that age influenced the relationship between gender and preference of andragogical preference, contrasting existing empirical evidence showing age and gender interact to influence self-direction (Reio & Davis, 2005; Roessger et al., 2019). Reio and Davis (2005) found that at a younger age, females self-reported having higher levels of self-direction than males, but as age increased that preference leveled out. Roessger et al. (2019) observed student behavior in creating an academic plan and found that younger females displayed lower levels of self-directedness than males, but as age increased became more self-directed than their male counterparts. Because my study was also self-reported, I expected results similar to that of Reio and Davis; however, not finding a significant relationship among these three variables is still interesting. Perhaps this means that, while age and gender do interact as they relate to self-direction, the interaction is lost when looking at all six andragogical assumptions.

While no interaction effect was found between age and gender, a relationship was found between gender and preference for andragogical assumptions. This was the only variable for which my hypothesis was supported, the lone result that aligned with the literature reviewed. My findings indicated that female students have a slightly lower preference for andragogical assumptions than males. This is consistent with the findings of King-Spezzo et al. (2020), who found that an ideal classroom for female students would include greater levels of teacher support

than the ideal classroom for their male counterparts. It also supports the findings of Roessger et al. (2020) who found that on an international scale, males reported a higher preference for andragogical assumptions.

The findings of these studies, and others, indicate distinct differences in learning preferences between genders. For example, Wehrwein et al. (2007) analyzed the responses of 48 junior and senior level physiology students at the University of Michigan and found that the visual, auditory, read-write, and kinesthetic (VARK) learning preferences between genders was significant. Over half (54.2%) of the female respondents preferred one mode (unimodal) of learning, 12.5% preferred two modes (bimodal), 12.5% preferred three modes (trimodal), and 20.8% preferred all four modes (quadmodal). Interestingly, none of females who preferred one mode of learning preferred the auditory method. For the male respondents, only 12.5% preferred unimodal learning, 16.7% preferred bimodal, 12.5% trimodal, and over half (58.3%) quadmodal. Of the male students who preferred one mode, none preferred the visual mode. In a multi-discipline analysis, Geary (2017) found that females had cognitive advantages in the area folk psychology – reading and negotiating relationships, language, detecting subtle variations in body language and facial expressions, and inferring the thoughts and feelings of others. Males, on the other hand, had cognitive advantages in the area of folk physics – navigating physical and virtual spaces and remembering images with the ability to mentally manipulate them.

The question then becomes, what do these differences mean in the context of our classrooms? Generally, males have a slightly higher preference for andragogy, prefer multimodal styles of learning, and excel at tasks that involve physical participation, while females have a slightly lesser preference for andragogy, prefer unimodal styles of learning, and excel at tasks that include interpersonal participation. In fact, Table 15 in Chapter 4 showed that males

students, traditionally underrepresented in community colleges, reported the highest preference for andragogical assumptions across all student groups. Could it be that the teaching strategies employed at community colleges do not match well with the average male learner's preferences?

It is often said that you cannot please everyone, but as educators, it is necessary to *reach* everyone. With such vast differences in learning preferences, that seems like a difficult task, and these are only differences related to gender. What additional differences might arise when looking at other student characteristics?

Race/Ethnicity

The literature indicates that many believe American education perpetuates systematic issues of inequality and exists to benefit those of the dominant culture and the economically advantaged (Duff, 2019; Guinier, 2015; Hunn, 2004). Duff (2019) and Lee (2003) criticize andragogy, specifically, for similar reasons. And while the results of my study did find one statistically significant difference with regard to race/ethnicity, it indicated that black students have a higher preference for andragogy than white students, obviously not the results most critics would have expected. However, without empirical evidence, these critics derived their conclusions of andragogy based on personal experiences, opinions, and interpretations of existing literature.

The results of my study take a step in providing empirical evidence regarding race/ethnicity and preference for andragogy. However, keep in mind that when I conducted the study, two of the five race/ethnicity categories had cell counts less than 20, and one of those contained collapsed data. It is possible that other races/ethnicities do have a differing preference for andragogical assumptions, and my study simply did not have the ability to detect those differences. Unfortunately, I am not aware of any other empirical evidence with which to

compare these results. When the PIAAC survey was conducted, many countries omitted the questions regarding race and ethnicity, so Roessger et al. (2020) was unable to make comparisons based on this variable. Without having any other results to compare to, I am hesitant to draw conclusions or make recommendations regarding this finding.

Socioeconomic Status

The finding related to socioeconomic status indicated that there is no relationship between socioeconomic status and preference for andragogical assumptions. This result does not align with principles of Maslow's theory on the Hierarchy of Needs, which indicate that lower level needs (food, shelter, safety, etc.) must first be met before a person will show interest in meeting higher level needs (prestige, admiration, self-actualization, etc.). It also differs from the Roessger et al. (2020) study which found as country's ability to meet its citizens' basic and psychological needs increased (as measured by the Gallup Share Global Well-being Index score), so did the citizens' preferences for andragogical assumptions.

When I compare my results to those of Roessger et al., I cannot help but wonder the cause for differences. One potential explanation could be in the way my study was designed, which captured a dichotomous (low/not low) response regarding socioeconomic status, based on Pell grant eligibility. This means that someone whose total family income barely exceeded $50,000 (the cap for Pell grant eligibility) was considered having the same socioeconomic status as someone as whose total family income was $150,000. Similarly, someone whose family income was just under $50,000 was in the same category as someone whose total family income was $15,000. While the dichotomous design provided an easy way to indicate socioeconomic status (low/not low), it does not allow for analysis within the two categories. Perhaps if the

measure had been captured using a continuous variable, or based on Family Expected Contribution, a difference between socioeconomic levels could have been detected.

Another explanation for my results could simply be that, within Arkansas community college students, there is no relationship between socioeconomic status and preference for andragogical assumptions. After all, the Gallup Share Global Well-being Index captures scores from countries like Haiti, Georgia, and Bulgaria, where over 90% of the country's population is considered struggling or suffering, as well as from countries like Denmark and Finland where over 75% of the country's population is considered thriving (Gallup Global Wellbeing, 2010). Perhaps in comparison, the differences between socioeconomic statuses for people enrolled in community colleges within one state are simply not drastic enough to show differences in preference for andragogical assumptions.

College Readiness, Class Standing, and Program Type

The results relating to college readiness, class standing, and program type also failed to match what the literature indicated. The lack of significant results related to college readiness and class standing indicate that a community college student's preference for andragogical assumptions is not influenced by academic or chronological development. Perhaps these were the most surprising results of them all, as Knowles himself identified andragogy as a set of assumptions for mature learners (Knowles, 1980). He believed that *as individuals mature*, their preferences for andragogical methods would increase, but that was not the case for the students in this study, at least not in regard to academic maturity.

In Chapter 2, I mentioned that Knowles had fifteen different dimensions by which a person could measure maturity. For this study, I chose to focus on the dimension of "Ignorance toward Enlightenment." It seemed to be the best fit for the variables in which I was interested.

However, it could be that other dimensions of maturation have a stronger relationship with a person's preference for andragogical assumptions. For example, does preference for andragogical assumptions have a stronger relationship with the maturation dimension of responsibilities? Does a person's self-view better align with preference for andragogical assumptions?

Another dimension of maturity Knowles provided was related to the number of interests a person holds. Generally speaking, a person's interests often help inform their academic choices. For example, someone interested in becoming a social worker might pursue a degree in counseling, or someone who enjoys tinkering with machinery might enroll in a mechanic or industrial maintenance program. Academic program type was another area of interest in this study. Because workforce and technical programs so easily lend themselves to andragogical methods, I thought those students pursuing such programs of study might have a higher preference for andragogy. However, the results of my study indicate that is not the case. There was not significant difference in preference for andragogical assumptions based on the student's program type, indicating that andragogical preferences are similar in general education programs and workforce and technical programs.

Culture

Culture has been found to influence learning preferences in several studies (Boland et al., 2011; Chen & Bennett, 2012; Jaju et al., 2002; Jung et al., 2012; Roessger et al., 2020). Jaju et al. (2002) found that cultural factors relating to Hofstede's four original cultural dimensions (masculinity/femininity, power distance, individualism/collectivism, and uncertainty avoidance) influenced students' learning preferences in India, Korea, and the United States. They found students in the United States prefer concrete experiences, students in India prefer concrete

experiences and reflective observation, and students from Korea have a strong preference for reflective observation. Boland et al. (2011) found similar results in their multinational study finding that students from Australia and Belgium were more individualistic and preferred learning by thinking and doing, students from Japan were more collectivistic and preferred to learn by feeling and watching. In their study analyzing the PIAAC survey results, Roessger et al. (2020) found for each of Hofstede's six cultural dimensions (the four above plus long-term orientation and indulgence), a one unit increase in score resulted in a statistically significant variance in andragogical preferences. These studies, and others highlighted in Chapter 2, support this idea of culture influencing learning preferences.

All of the studies I reviewed looked how cultural differences influence learning preferences across multiple countries, but I wanted to know if similar results might exist on a local scale. This question regarding culture within Arkansas was of personal interest to me. As a native to the Mississippi River Delta region of Arkansas, I have witnessed the struggles that low educational outcomes and generational poverty bring. I wondered if the ecological systems that surround the individuals of this region created a significant difference in the way these students prefer to learn. I hoped this study might provide insight into how to better teach the students of this region, and of others. Unfortunately, this study did provide the answers I was looking for, as no relationship exists between culture differences within the State and a student's preference for andragogical assumptions.

Conclusion

I remember the deflated feeling as the reality of my findings sank in. I immediately blamed the study design, the students who participated, and even the students who did not participate for the lackluster results. I was tempted to balk at the results and to argue the reasons

I was right, and my study was wrong. Yet, eventually I realized that while the evidence I collected and the results I anticipated had been crucial in shaping my study, they became irrelevant when interpreting its results.

What did the findings of my study really mean? What do they add to the pre-existing body of literature? At the surface, the findings mean that there is very little variation in the preference for andragogy within Arkansas community colleges, and that andragogy is a suitable method for at least a portion of the students who attend these institutions. As my conclusion section discussed, even those variables (gender and race/ethnicity) that detected statistically significant differences have only small practical effects. This means that even though female students reported having a slightly lower preference for andragogical assumptions, the practicality of that difference is small enough that they can still learn when assumptions of andragogy are employed in the classroom. As far as what these findings add to the existing literature, if nothing else they add a number of questions that can be investigated in future studies.

Recommendations for Research

Bronfenbrenner posited that development occurs through complex interactions between an individual and various levels of their environment. This study investigated preference for andragogical assumptions based on several variables relating to an individual (age, race/ethnicity, gender) and their ecological system (socioeconomic status, college readiness, class standing, program type, and culture). Of these eight variables, two were found to have a statistically significant relationship with a student's preference for andragogical assumptions. Both variables, race/ethnicity, and gender, were at the individual level of the ecological system.

One recommendation for those wishing to further investigate this topic is to explore additional individual level variables. My study is not the only recent study using Ecological Systems Theory to find significance at the individual level and not on other levels. Rohlman (2020) investigated variables that predict a student's success in College English I classes at the individual, micro- and meso- systems and found individual characteristics as most significant in predicting completion. My study looked at age, race/ethnicity, and gender, but there are many other individual-level characteristics that could be explored. Perhaps these results indicate that Ecological Systems Theory truly is more appropriate for topics regarding child development. It could be that once a child develops into an adult, the external ecological systems do not have as much influence as the individual's personal characteristics.

Individual characteristics such as occupation, familial status, self-view, and activity level are a few ideas for future research. Knowles (1980) suggested that having a large number of responsibilities is a sign of maturity. As such, occupation and familial status could both be indicators of a person's maturity level. Roessger et al. (2020) also found andragogical preference to be higher for individuals with higher occupational skill levels. Other signs of maturity identified by Knowles were self-acceptance and activity indicating that those who have a healthy self-view and those who volunteer or participate in extra-curricular activities are more mature than those who do not. The question is whether or not these signs of maturity also have a relationship with andragogical preferences.

Another recommendation for someone wishing to perform a similar study would be to select a more localized population that would allow for greater oversight in the execution of the study and selection of the sample. Despite employing several tactics to reach a broad spectrum of the population, only 1,817 students responded statewide. While that may seem like a large

number, the fall 2018 enrollment for Arkansas community colleges statewide was 43,664 (National Center for Education Statistics (NCES), 2020). That same semester, 12,300 students were concurrently enrolled in high school (Arkansas Division of Higher Education, 2020), leaving the postsecondary population as 31,364 students. Based on these numbers (which are the most recent numbers posted by NCES) I collected data on approximately 5.8% of the population. I cannot help but wonder if the remaining 94% of the population would have responded differently to the survey. Nonresponse error occurs when the characteristics of individuals who did not to participate differ from the individuals who did, and if severe enough, it can create nonresponse bias within the study (Dillman et al., 2014). It is plausible that the approximately six percent of the student population who took the time to voluntarily respond to my survey invitation had different responses than those who did not, but short of reaching out to those who chose not to respond and convincing them to participate, the impact of their nonresponse cannot be known, and since I was not the one directly communicating with the students, this would not have been a viable option. However, conducting a similar study at one community college where the researcher has greater oversight and faculty buy-in might provide an opportunity to collect responses from a group of the population that this study did not reach.

Recommendations for Practice

Based on the results of this study, my recommendation for Arkansas community college educators and administrators is to engage students using the assumptions of andragogy. Assign case studies and/or simulations that help students understand the relevance of what they are learning. Not only do these types of assignments create a problem-centered approach to learning, they also address need to know. To satisfy the assumption of self-concept, consider creating a syllabus that provides students with multiple options for meeting course objectives. Ask open-

ended questions and facilitate discussions that allow students to draw from their foundational experiences to make connections to new knowledge. Continually remind students of the immediate benefits of what they are learning to increase their readiness to learn. Finally, look for opportunities to publicly acknowledge students who perform well. Not only does this increase their motivation to learn, it could potentially inspire others who desire recognition and accomplishment.

However, I do not recommend using andragogy as a stand-alone method. Knowles (1980) even suggested that andragogy is most useful when viewed as one end of a pedagogy to andragogy spectrum. Even though my finding indicated that the average student liked andragogy "to a high extent," it is important to note that these results may not be representative of all of the students in a classroom. If andragogical methods seem to be ineffective or detrimental to a student, an alternative method should be employed. After all, our goal as educators should be to help every student succeed.

Summary

This study used multiple linear regression to investigate the relationship between Arkansas community college students' preferences for andragogical assumptions and their age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and culture. The interaction between age and gender within that relationship was also investigated. Results indicated that a relationship does exist between race/ethnicity and preference for andragogical assumption and between gender and preference for andragogical assumptions. Still there is much to explore when it comes to adult learning, and andragogy in particular. Future research should look more deeply at the relationship between learning preference individual-level characteristics. Also, a future study conducted with a more limited scope might allow for a

more robust response within the population. For now, Arkansas community college educators should feel comfortable employing andragogical methods in their classrooms, with the understanding that adjustments may need to be made for some students. Being flexible and accommodating in order to foster student success is crucial. Perhaps the primary goal of higher education institutions is to help our students succeed. Continuing to learn as much as we can about our students and how they prefer to learn must be a priority if we wish to achieve that goal.

References

ACT. (2018a). The condition of college and career readiness: Arkansas key findings. http://www.act.org/content/dam/act/unsecured/documents/cccr2018/Arkansas-CCCR-2018.pdf

ACT. (2018b). The condition of college and career readiness: National 2018. https://www.act.org/content/dam/act/unsecured/documents/cccr2018/National-CCCR-2018.pdf

ACT. (2020). College and career readiness benchmarks. https://www.act.org/content/act/en/college-and-career-readiness/benchmarks.html

Al Lily, A. E., & Alhazmi, A. A. (2019). The pedagogy of poverty: Instructional and technological challenges. *Adult Learning, 30*(2), 47-55. http://dx.doi.org/10.1177/1045159518817744

Allen, P, & Withey, P. (2017). The student customer phenomenon. *Journal of Higher Education Theory and Practice, 17*(3), 45-56. Retrieved from https://search.proquest.com/docview/1926895801?accountid=8361

American Association of Community Colleges. (2019). Field notes: Guide to your constituency.

American Institutes for Research (2016). The shifting academic workforce: Where are the contingent faculty? Retrieved from https://deltacostproject.org/sites/default/files/products/Shifting-Academic-Workforce-November-2016_0.pdf

Arkansas 78th General Assembly. (1991). Act 1244: Two-Year Postsecondary Education Reorganization Act of 1991. https://www.arkleg.state.ar.us/Acts/Document?type=PDF&source=Acts&act=1244&ddBienniumSession=1991%2FR&Search=

Arkansas 87th General Assembly. (2009). Act 970: An act to expand reporting of postsecondary remediation; and for other purposes. http://www.arkleg.state.ar.us/assembly/2009/R/Acts/Act970.pdf

Arkansas Department of Higher Education. (2018a). Arkansas Higher Education annual report on first-year student remediation: Academic year 2017-18. https://static.ark.org/eeuploads/adhe/1_-_First-Year_Student_Remediation.pdf

Arkansas Department of Higher Education. (2018b). Arkansas public higher education operating recommendations: Fiscal year 2018-2019. https://static.ark.org/eeuploads/adhe/A-Book_FINAL(2).pdf

Arkansas Department of Higher Education. (2018c). Productivity funding formula: Model specifications – year 2. https://static.ark.org/eeuploads/adhe/Productivity_Funding_Formula_Specifications_-_Year_2.pdf

Arkansas Department of Higher Education. (2019). Arkansas public higher education operating and capital recommendations: 2019-2021 biennium. https://static.ark.org/eeuploads/adhe/A_BOOK_VOL_1_v2_.pdf

Arkansas Department of Higher Education. (2020). Arkansas public higher education operating recommendations: Fiscal year 2020-21. https://static.ark.org/eeuploads/adhe/A-Book_FINAL.pdf

Arkansas Division of Higher Education. (2020). Annual report on concurrent education: Fiscal year 2018-20. https://static.ark.org/eeuploads/adhe/09-Annual_Report_of_Concurrent_Education.pdf

Arkansas.com. (2020). Arkansas 2020 travel guide. https://bluetoad.com/publication/?m=59369&i=638764&p=1&pp=1

Bailey, T. (2009). Challenge and opportunity: Rethinking the role and function of developmental education in community college. *New Directions for Community Colleges, 2009*(145), 11-30. https://doi.org/10.1002/cc.352

Bailey, T. & Cho, S. (2010). Developmental education in community colleges. Retrieved from https://www2.ed.gov/PDFDocs/college-completion/07-developmental-education-in-community-colleges.pdf

Bailey, T., Jeong, D.W., & Cho, S. (2010). Referral, enrollment, and completion in developmental education sequences in community colleges. *Economics of Education Review, 29*(2), 255-270. Retrieved from https://reader.elsevier.com/reader/sd/pii/S0272775709001071?token=ED9DCBA3CC7C2008D446DC632BC599FE1310E1045AE682595C0FC4C33B23015A08FA08B9ECA2CFD2A33ECFE79F6A8E91

Barlow, D. (2008, Apr.). America's forgotten schools. *The Education Digest, 73*, 67-70. Retrieved from http://0-search.proquest.com.library.uark.edu/docview/218178285?accountid=8361

Baum, S., Ma., J., & Payea, K. (2013). Education pays 2013: The benefits of higher education for individuals and society. Retrieved from https://trends.collegeboard.org/sites/default/files/education-pays-2013-full-report.pdf.

Beach, J. M. (2010). *Gateway to opportunity? A history of the community college in the United States.* Sterling, VA: Stylus Publishing.

Bice-Wigington, T. & Morgan, K. (2018). Teaching note – Diversity and difference through a rural lens. *Journal of Social Work Education, 54*(2), 392-396. https://doi.org/10.1080/10437797.2017.1314838

Bluteau, P., Clouder, L., & Cureton, D. (2017). Developing interprofessional education online: An ecological systems theory analysis. *Journal of Interprofessional Care, 31*(4), 420-428. Retrieved from: http://0-eds.b.ebscohost.com.library.uark.edu/ehost/pdfviewer/pdfviewer?vid=1&sid=8f0bb75e-3125-4835-a090-3ee3bff86142%40pdc-v-sessmgr02

Boland, G., Sugahara, S., Opdecam, E., & Everaert, P. (2011). The impact of cultural factors on students' learning style preferences. *Asian Review of Accounting, 19*(3), 243-265. DOI: 10.1108/13217341111185155

Botha, J., & Coetzee, M. (2016). The influence of biographical factors on adult learner self-directedness in an open distance learning environment. *International Review of Research in Open and Distributed Learning, 17*(4), 242-263. Retrieved from https://search.proquest.com/docview/1829492340/fulltextPDF/E55F51823A2E4285PQ/1?accountid=8361

Cadet., M. J. (2018). Self-perception of readiness to learn and self-efficacy amoung nursing students in an online baccalaureate program. *Journal of Informatics Nursing, 3*(2), 23-27.

Cameron, D. (1997). Performing gender identity: Young men's talk and the construction of heterosexual masculinity. *Language and gender: A reader.* Retrieved from http://anthropology.msu.edu/anp201-us16/files/2016/06/4.3-Cameron.pdf

Carozza, S. E., Puumala, S. E., Chow, E. J., Fox, E. E., Horel, S., Johnson, K. J., McLaughlin, C. C., Reynolds, P., Von Behren, J., Mueller, B. A., & Spector, L. G. (2010). Parental educational attainment as an indicator of socioeconomic status and risk of childhood cancers. *British Journal of Cancer, 103*(1), 136-142. doi: 10.1038/sj.bjc.6605732

Carriere, K. R. (2013). Culture cultivating culture: The four products of the meaning-made world. *Integrative Psychological and Behavioral Science, 48*(3), 270-282. doi: 10.1007/s12124-013-9252-0.

Center for Community College Student Engagement. (2014). Contingent commitments: Bringing part-time faculty into focus. Retrieved from https://www.ccsse.org/docs/PTF_Special_Report.pdf

Chaffey, D. (2019). How do we compare? 2019 email marketing statistics compilation. Retrieved from https://www.smartinsights.com/email-marketing/email-communications-strategy/statistics-sources-for-email-marketing/

Chan, S. (2010). Applications of andragogy in multi-disciplined teaching and learning. *Journal of Adult Education, 39*(2), 25-35.

Chen, R. T., & Bennett, S. (2012). When Chinese learners meet constructivist pedagogy online. *Higher Education, 64*(5), 677-691. doi:10.1007/s10734-012-9520-9

Cohen, A. M., Brawer, F. B., & Kisker, C. B. (2013). *The American community college* (6th ed.). John Wiley & Sons, Inc.

Cole-Jett, R. (2014). *The Red River Valley in Arkansas: Gateway to the southwest.* The History Press.

Conley, D. T. (2007). Redefining college success, volume 3. Eugene, OR: Educational Policy Improvement Center. Retrieved from http://erc.cehd.tamu.edu/wp-content/uploads/sites/41/2020/02/1_Redefining-College-Readiness-article.pdf

Culatta, R. (2018). Andragogy (Malcom Knowles). InstructionalDesign.org. Retrieved from http://www.instructionaldesign.org/theories/andragogy/

D'Amico, M. M., Sublett, C. M., & Barlett II, J. E. (2019). *Preparing the workforce in today's community colleges: Issues and implications for higher education leaders.* American Council on Education. Retrieved from https://www.acenet.edu/Documents/Preparing-the-Workforce-in-Todays-Comty-Colleges.pdf

Dassance, C. R. (2011). The next community college movement? *New Directions for Community Colleges, 2011*(156), 31-39.

Davidson, F., & Paradise, T. (2015). Landscape, environment, and geography of the Mississippi River Delta region. *Defining the Delta: Multidisciplinary perspectives on the lower Mississippi River Delta* (pp. 63-88). University of Arkansas Press.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley & Sons, Inc.

Duff, M. C. (2019). Perspectives in AE – Adult Black males and andragogy: Is there a goodness of fit? New Horizons in Adult Education & Human Resource Development, 31(4), 51-58. doi:10.1002/nha3.20264

EuroMed Info. (2019). Patient education: Learning readiness. Retrieved from https://www.euromedinfo.eu/patient-education-learning-readiness.html/

Fain, P. (2019). Wealth's influence on enrollment and completion. *Inside Higher Ed.* Retrieved from https://www.insidehighered.com/news/2019/05/23/feds-release-broader-data-socioeconomic-status-and-college-enrollment-and-completion

Federal Writers' Project. (1941). *Arkansas: A guide to the state.* Hastings House Publishers.

Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed). Sage Publications, Inc.

Gallup. (2010). Gallup global well-being: The behavioral economics of GDP growth. Gallup, Inc. file:///C:/Users/Staff/Downloads/GlobalWellbeing_Rpt_POLL_0310_lowres.pdf

Golubski, P. M. (2011). Virtually onboarding and supporting adult students in college using web 2.0 technologies. *Encyclopedia of Information Communication Technologies and Adult Education Integration.* doi: 10.4018/978-1-61692-906-0.ch062

Gorges, J., Maehler, D. B., Koch, T., Offerhaus, J. (2016). Who likes to learn new things: Measuring adult motivation to learn with PIAAC data from 21 countries. *Large-scale Assessments in Education, 4*(9), 1-22. Retrieved from https://doi.org/10.1186/s40536-016-0024-4

Gorges, J., Koch, T., Maehler, D. B., & Offerhaus, J. (2017). Same but different? Measurement invariance of the PIACC motivation-to-learn scale across key socio-demographic groups. *Large-scale Assessments in Education, 5*(13), 1-27. https://doi.org/10.1186/s40536-017-0047-5

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60*, 549-576. https://pdfs.semanticscholar.org/5d13/841cf55efbab48663ca29ef8d8ffb3bb087f.pdf?_ga=2.114137479.1052752412.1610983665-2098056864.1610983665

Green, J. J., Greever-Rice, T., & Glass, Jr., G. D. (2015). Sociodemographic snapshots of the Mississippi Delta. *Defining the Delta: Multidisciplinary perspectives on the lower Mississippi River Delta* (pp. 107-122). Fayetteville, AR: University of Arkansas Press.

Guinier, L. (2015). The tyranny of meritocracy: In their admissions criteria, colleges are further comforting the comfortable. *The Chronicle of Higher Education,* Retrieved from https://search.proquest.com/docview/1645649713?accountid=8361

Hackman, D. A., & Farah, M. J. (2008). Socioeconomic status and the developing brain. *Trends in Cognitive Sciences, 13*(2), 65-73. Retrieved from https://0-ac-els--cdn-com.library.uark.edu/S1364661308002635/1-s2.0-S1364661308002635-main.pdf?_tid=dd0d0ac7-f237-4cf1-85b1-e1baa9797f80&acdnat=1548708129_2914b84a3abf3c24653c4136a6dd8f56

Hagen, M., & Park, S. (2016). We knew it all along! using cognitive science to explain how andragogy works. *European Journal of Training and Development, 40*(3), 171-190. doi:http://0-dx.doi.org.library.uark.edu/10.1108/EJTD-10-2015-0081

Hansman, C. A., & Mott, V. W. (2010). Adult learners. *Handbook of adult and continuing education* (2010 ed.), 13-23. Thousand Oaks, CA: Sage Publications, Inc.

Henschke, J. A. (2011). Considerations regarding the future of andragogy. *Adult Learning*, *22*(1), 34–37. https://doi.org/10.1177/104515951102200109

Herideen, P. (1998). *Policy, pedagogy, and social inequality : Community college student realities in post-industrial America.* Bergin & Garvey Publishing.

Hirschy, A. S., Bremer, C. D., & Castellano, M. (2011). Career and Technical Education (CTE) student success in community colleges: A conceptual model. *Community College Review 39*(3), 296-318. doi: 10.1177/0091552111416349

Hofstede, G. (1984). *Culture's consequences: International differences in work-related values.* Newbury Park, CA: SAGE Publications, Inc.

Hunn, L. M. (2004). Africentric philosophy: A remedy for Eurocentric dominance. *New Directions for Adult and Continuing Education, 2004*(102), 65-74. doi:10.1002/ace.139

Hutchison, A. (2017, November 3). The new higher education funding formula. *Weekly Address.* Retrieved from https://governor.arkansas.gov/news-media/weekly-address/the-new-higher-education-funding-formula

Hyland, S. (2008). Reflections on the culture of the lower Mississippi Delta: Challenges and opportunities. *Journal of Health and Human Services Administration, 31*(1), 156-167. Retrieved from http://0-www.jstor.org.library.uark.edu/stable/25790734

Jaju, A., Kwak, H., & Zinkha, G. M. (2002). Learning styles of undergraduate business students: A cross-cultural comparison between the US, India, and Korea. *Marketing Education Review, 12*(2), 49-60.

Jones, A., Yazdani, B., & Barton, H. (2019). The activities and impact of personalisation in a UK business school. *Journal of Further and Higher Education, 43*(9), 1212-1225. DOI: 10.1080/0309877X.2018.1468426

Jung, I., Kudo, M., & Choi, S. (2012). Stress in Japanese learners engaged in online collaborative learning in English. *British Journal of Educational Technology, 43*(6), 1016-1029. doi:10.1111/j.1467-8535.2011.01271.x

King-Spezzo, A. J., Hsiao, E., Wiley, E. W., & Wiley, L. P. (2020). Comparing adult learners' expectations of ideal course environments focused on task orientation, teacher support, and student influence. *Journal of Educators Online, 17*(1). https://files.eric.ed.gov/fulltext/EJ1241561.pdf

Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy revised and updated.* Chicago, IL: Association Press.

Knowles, M. S. (1990). *The adult learner: A neglected species* (4th ed.). Houston, TX: Gulf Publishing Company.

Laureau, A., Weininger, E., Conley, D. & Velez, M. (2011). Unequal childhoods in context: Results from a quantitative analysis. *Unequal childhoods: class, race, and family life* (2nd

ed.). Berkeley, CA: University of California Press. Retrieved from https://0-ebookcentral-proquest-com.library.uark.edu/lib/uark-ebooks/detail.action?docID=740304

Lee, M. (2003). Andragogy & foreign-born learners. In L.M. Baumgartner, M. Lee, S. Birden, & D. Flowers, *Adult learning theory: A primer* (pp. 11-15). Columbus, OH: Center on Education and Training for Employment College of Education, The Ohio State University.

Leys, C., Ley, C., Klein, O., Bernard, P., & Licata, L. (2013). Detecting outliers: Do not use standard deviation around the mean, use absolute deviation around the median. *Journal of Experimental Social Psychology,* 49, 764-766. doi:10.1016/j.jesp.2013.03.013

Living in Arkansas. (2018). *Discover Arkansas: 6 distinct regions to find yourself at home in The Natural State*. Retrieved from http://www.livinginarkansas.net/post/106138/ discover-arkansas-find-yourself-at-home-in-the-natural-state

Lundry, J., Ramsey, J. W., Edwards, M. C., & Robinson, J. S. (2015). Benefits of career development events as perceived by school-based, agricultural education teachers. *Journal of Agricultural Education, 56*(1), 43-57. doi: 10.5032/jae.2015.01043

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370-396. Retrieved from http://0-eds.b.ebscohost.com.library.uark.edu/ehost/pdfviewer/pdfviewer?vid=1&sid=941233d2-6cf2-42c8-a05e-cd0c971dfe20%40sessionmgr120

McCann, A. (2019, Jan 21). Most & least educated states in America: Keep educating yourself. Retrieved from https://wallethub.com/edu/most-educated-states/31075/#methodology

McDonald, J. H. (2014). *Handbook of biological statistics* (3rd ed.). Baltimore, MD: Sparky House Publishing. Retrieved from http://www.biostathandbook.com/multipleregression.html

McNamara, D. S. (2009). The importance of teaching reading strategies. *Perspectives on Language and Literacy, 35*(2), 34-38,40. Retrieved from http://0-search.proquest.com.library.uark.edu/docview/200158536?accountid=8361

Merriam, S. B. & Bierema, L. L. (2013). *Adult learning: Linking theory and practice* (1st ed.). San Francisco, CA: Jossey-Bass.

Merriam, S. B., Caffarella, R. S., & Baumgartner, L. M. (2007). *Learning in adulthood: A comprehensive guide* (3rd ed.). San Francisco, CA: Jossey-Bass.

Merriam, S. B., & Ntseane, G. (2008). Transformational learning in Botswana: How culture shapes the process. *Adult Education Quarterly, 58*(3), 183-197. doi:10.1177/0741713608314087

Merriam-Webster, Incorporated. (2020). Ignorance. Retrieved from https://www.merriam-webster.com/dictionary/ignorance?src=search-dict-box

Metro Little Rock Alliance. (2020). Industries. https://www.metrolittlerockalliance.com/industries/

Milheim, K. L. (2012). Toward a better experience: Examining student needs in the online classroom through Maslow's hierarchy of needs model. *MERLOT Journal of Online Learning and Teaching, 8*(2), 159-171. Retrieved from http://0-search.proquest.com.library.uark.edu/docview/1499824204?accountid=8361

Mitchell, D. E. (2018). Say it loud: An action research project examining the Afrivisual and Africology, looking for alternative African American community college teaching strategies. *Journal of Pan African Studies, 12*(4), online. https://go.gale.com/ps/i.do?p=LitRC&u=faye28748&id=GALE%7CA572943740&v=2.1&it=r&sid=summon

Monticello.org. (2020). Nothing is more unequal (Spurious quotation). https://www.monticello.org/site/research-and-collections/nothing-more-unequalspurious-quotation

Nash, S. (2016). Message in a bottle: A comparative study of spiritual needs of children and young people in and out of hospital. *International Journal of Children's Spirituality, 21*(2), 116-127. http://dx.doi.org/10.1080/1364436X.206.1182894

National Academies of Sciences, Engineering, and Medicine. (2018). *How people learn II: Learners, contexts, and cultures.* Washington, DC: The National Academies Press. https://doi.org/10.17226/24783. Retrieved from https://www.nap.edu/read/24783/chapter/8#113

National Center for Education Statistics. (2016). *Remedial coursetaking at U.S. public 2-year and 4-year institutions: Scope, experiences, and outcomes.* Retrieved from https://nces.ed.gov/pubs2016/2016405.pdf

National Center for Education Statistics. (2017). *Digest of Education Statistics* [Table 303.50; Table 331.90]. Retrieved from https://nces.ed.gov/programs/digest/2017menu_tables.asp

National Center for Educational Statistics. (2019). IPEDS: Compare institutions. Retrieved from https://nces.ed.gov/ipeds/datacenter/InstitutionByGroup.aspx

National Center for Educational Statistics. (2020). The condition of education 2020. https://nces.ed.gov/pubs2020/2020144.pdf

OECD. (2011a). PIAAC BQ JRA V5.0 – Conceptual framework. Paris, France: OECD Publishing. Retrieved from http://www.oecd.org/edu/48865373.pdf

OECD. (2011b). PIAAC conceptual framework of the background questionnaire main survey. http://www.oecd.org/skills/piaac/PIAAC(2011_11)MS_BQ_ConceptualFramework_1%20Dec%202011.pdf

Onder, F., & Silay, I. (2015). The importance of learning styles to form more successful cooperative groups in physics course. *European Journal of Physics Education, 6*(4), 1-11. https://files.eric.ed.gov/fulltext/EJ1233005.pdf

Pfahl, N. L., McClenney, K. M., O'Banion, T., Sullivan, L. G., & Wilson, C. M. (2010). The learning landscape of community colleges. *Handbook of adult and continuing education* (2010 ed.), 231-241. Thousand Oaks, CA: Sage Publications, Inc.

Phillips, J. M. (2016). Hipbillies and hillbillies: Back-to-the-landers in the Arkansas Ozarks during the 1970s. *The Arkansas Historical Quarterly, 75*(2), 89-110. Retrieved from https://www.jstor.org/stable/26281869

Pichère, P., & Cadiat, A. C., & Probert, C. (2015). *Maslow's hierarchy of needs: Gain vital insights into how to motivate people*. Namur [Belgique]: 50minutes.com. Retrieved from http://0-search.ebscohost.com.library.uark.edu/login.aspx?direct=true&db=nlebk&AN=1096505&site=ehost-live&scope=site

Poch, S. (2003). Higher education in a box. *International Journal of Educational Management, 19*(3), 246-258). Retrieved from https://0-www-emeraldinsight-com.library.uark.edu/doi/full/10.1108/09513540510591020

Provasnik, S., & Planty, M. (2008). *Community college: Special supplement to the condition of education.* Washington, DC: U.S. Department of Education, NCES.

Renn, K. A. & Arnold, K. D. (2003). Reconceptualizing research on college student peer culture. *The Journal of Higher Education, 74*(3), 261-291. Retrieved from https://0-www-jstor-org.library.uark.edu/stable/pdf/3648273.pdf

Roberson, D. N. (2002). Andragogy in color. Retrieved from https://files.eric.ed.gov/fulltext/ED465047.pdf

Roessger, K. M. (2013). *Investigating the impact of formal reflective activities on skill adaptation in a work-related instrumental learning setting* (Publication No. 3603575) [Doctoral dissertation, University of Wisconsin-Milwaukee]. Proquest Dissertations Publishing.

Roessger, K. M., Eisentrout, K., & Hevel, M. S. (2019). Age and academic advising in community colleges: Examining the assumption of self-directed learning. *Community College Journal of Research and Practice, 43*(6), 441-454. doi: 10.1080/10668926.2018.1490669

Roessger, K. M., Roumell, E. A., & Weese, J. (2020). Rethinking andragogical assumptions in the global age: How preferences for andragogical learning vary across people and cultures. *Studies in Continuing Education.* DOI: 10.1080/0158037X.2020.1732335

Rohlman, J. (2020). *How do student and secondary school characteristics explain college English I completion in a rural Arkansas community college?* (Publication No. 27955498) [Doctoral dissertation, University of Arkansas]. ProQuest Dissertations & Theses Global (2408270507). https://search.proquest.com/docview/2408270507?accountid=8361

Rutherford, A. S., Hillmer, T., & Parker, A. (2011). Overcoming the education challenge of poverty in the Mississippi Delta. *Phi Delta Kappa, 93*(3), 40-43. https://doi.org/10.1177/003172171109300310

Sandlin, J. A. (2005). Culture, consumption, and adult education: Refashioning consumer education for adults as a political site using a cultural studies framework. *Adult Education Quarterly, 55*(3), 165-181. https://doi.org/10.1177/0741713605274626

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science, 22*(11), 1259-1366. doi: 10.1177/0956797611417632

Smalley, S. W. & Sands, K. (2018). Perceptions of Career and Technical Education by pre-service students. *Journal of Research in Technical Careers, 2*(1), 52-58. doi: 10.9741/2578-2118.1025

Smith, T. J., Smith, M. C., Rose, A. D., & Ross-Gordon, J. M. (2016). An assessment of the factor structure and factorial invariance of scores from the Readiness to Learn scale. *Learning and Individual Differences, 49,* 230-236. Retrieved from https://doi.org/10.1016/j.lindif.2016.06.015

Taylor, B., & Kroth, M. (2009). Andragogy's transition into the future: Meta-analysis of andragogy and its search for a measurable instrument. *Journal of Adult Education, 38*(1), 1-11. Retrieved from http://0-search.proquest.com.library.uark.edu/docview/204494009?accountid=8361

Taylor, C. E., & Smith, R. C. (2019). Secondary mathematics teacher educators' interpretations of the situative perspective. *The Mathematics Educator, 28*(2), 52-75.

Taylor, B., & Kroth, M. (2009). Andragogy's transition into the future: Meta-analysis of andragogy and its search for a measurable instrument. *Journal of Adult Education, 38*(1), 1-11. Retrieved from http://0-search.proquest.com.library.uark.edu/docview/204494009?accountid=8361

Teye, A. C., & Peaslee, L. (2015). Measuring educational outcomes for at-risk children and youth: Issues with the validity of self-reported data. *Child & Youth Care Forum, 44*(6), 853-873. doi: 10.1007/s10566-015-9310-5

Tompkins, L. (2020). Here's what you need to know about Elijah McClain's death. *The New York Times.* https://www.nytimes.com/article/who-was-elijah-mcclain.html

Turner, J. C. & Nolen, S. B. (2015). Introduction: The relevance of the situative perspective in educational psychology. *Educational Psychologist, 50*(3), 167-172. Doi: 10.1080/00461520.2015.1075404

United States Census Bureau. (2019a). Income and poverty in the United States: 2018. Retrieved from https://www.census.gov/content/dam/Census/library/publications/2019/demo/p60-266.pdf

United States Census Bureau. (2019b). *Quick facts: Arkansas.* Retrieved from https://www.census.gov/quickfacts/ar

United States Census Bureau. (2020). Small area income and poverty estimates. Retrieved from https://www.census.gov/data-tools/demo/saipe/saipe.html?s_appName=saipe &menu=grid_proxy

Vaughn, G. B. (2006). *The community college story* (3rd ed.). Washington, DC: Community College Press.

Wehrwein, E. A., Lujan, H. L., & DiCarlo, S. E. (2007). Gender differences in learning style preferences among undergraduate physiology students. Advances in Physiology Education, 31(2), 153-157. https://doi.org/10.1152/advan.00060.2006

Whayne, J. M. (2015). What is the Mississippi Delta? A historian's perspective. *Defining the Delta: Multidisciplinary perspectives on the lower Mississippi River Delta* (pp. 123-132). Fayetteville, AR: University of Arkansas Press.

Xu, D., & Ran, F. X. (2020). Noncredit education in community college: Students, course enrollments, and academic outcomes. *Community College Review, 48*(1), 77-101. http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=4&sid=19f24cd6-bc6b-4651-b5b3-4aaefe7705bc%40sessionmgr4008

Appendices

Appendix A: Survey

Welcome Screen*: Thank you for your willingness to help a fellow student! The following survey consists of 3 sections containing 4-6 questions each (16 questions total). The purpose of the survey is to determine if differences exist in how community college students prefer to learn based on their age, race/ethnicity, gender, socioeconomic status, college readiness, class standing, program type, and/or culture. The goal of the study is to inform college instructors and administrators of these differences in order to better serve students. As such, it is very important that you answer each question as honestly as possible.*

Page 1:

This first set of questions is to learn more about your educational experience as a community college student.

1. **What college are you attending?** (This will be a drop-down allowing them to select which of the 22 colleges they attend.)
2. **Which best describes your reason for enrolling in college?** (Selection between: "Seeking a degree or certificate in a General Education or Transfer program" or "Seeking a degree in a Technical or Workforce program," or "Not seeking a degree or certificate")
3. **Not including this semester, how many college credits have you completed?** (Selection between "0-29" or "30+")
4. **Are you eligible to receive a Pell Grant based on the FAFSA?** (Selection between: "Yes" or "No")

5. **Did your score on a college entrance exam make it necessary for you to take an additional English, math, or reading course?** *Examples of college entrance exams include the ACT, Accuplacer, Compass, SAT, etc.* (Selection between: "Yes" or "No")
6. **Did your score on a college entrance exam make it necessary for you to enroll in an additional English, math, or reading tutoring lab?** *Examples of college entrance exams include the ACT, Accuplacer, Compass, SAT, etc.* (Selection between: "Yes" or "No" option)

Page 2:

The next set of questions is to learn about your learning preferences. For each statement, please choose the response that most accurately reflects you.

7. **When I hear or read about new ideas, I try to relate them to real life situations to which they might apply**.

1 = Not at all; 2 = Very little; 3 = To some extent; 4 = To a high extent; 5 = To a very high extent

8. **I like learning new things**.

1 = Not at all; 2 = Very little; 3 = To some extent; 4 = To a high extent; 5 = To a very high extent

9. **When I come across something new, I try to relate it to what I already know**.

1 = Not at all; 2 = Very little; 3 = To some extent; 4 = To a high extent; 5 = To a very high extent

10. **I like to get to the bottom of difficult things**.

1 = Not at all; 2 = Very little; 3 = To some extent; 4 = To a high extent; 5 = To a very high extent

11. **I like to figure out how different ideas fit together**.

1 = Not at all; 2 = Very little; 3 = To some extent; 4 = To a high extent; 5 = To a very high extent

12. **If I don't understand something, I look for additional information to make it clearer**.

1 = Not at all; 2 = Very little; 3 = To some extent; 4 = To a high extent; 5 = To a very high extent

Page 3:

The final set of questions will be to learn more about you as an individual.

13. **How old are you?** (This will be a fill in the blank)
14. **What is your gender?** (Selection between: "Male," "Female," or "Other: _____")
15. **What is your race/ethnicity?** (Selection between: "American Indian or Alaska Native," "Asian," "Black or African American," "Hispanic or Latino," "Native Hawaiian or Other Pacific Islander," "White," or "Multiracial or Multiethnic")
16. **What is the highest level of education achieved by a parent or guardian who served as a primary caregiver? If you come from a home with multiple caregivers, please choose the highest education level achieved by either guardian.** (Selection between: "Less than high school diploma," "High school diploma," "Some college/Associate's degree," "Bachelor's degree," or "Advanced degree")

Closing screen: *Thank you for completing the survey! If you wish to be entered to win one of the ten $20 Amazon gift cards, please enter your student email address below. Note: Only valid student email addresses will be entered into the drawing. Winners will be notified within 30 days of the initial survey invitation.*

Student email address: _____

Appendix B: First Email to Students

Subject: Help a Fellow Student and Enter to Win a $20 Amazon Gift Card

The survey below is being sent on behalf of a student at the University of Arkansas who is conducting research on the learning preferences of community college students in Arkansas.
link posted here
The survey is 16 questions and on average takes less than 5 minutes to complete. By completing the survey, you are agreeing to allow your responses to be used in the research.

If you wish to be entered into the drawing for one of ten $20 Amazon gift cards, please enter your school email address on the page after the survey. Only valid school email addresses will be entered into the drawing. Winners will be notified within 30 days.

Any questions related to the survey should be sent to Emilee Sides at essides@uark.edu or Dr. Kevin Roessger at kmroessg@uark.edu. If you have questions regarding your rights as a participant, please contact the University of Arkansas Institutional Review Board at irb@uark.edu.

Thank you.

Appendix C: Email to Faculty
(sent 3 days after student email)

Subject: Survey Sent to Students

Three days ago, community college students across Arkansas received a survey sent on behalf of a doctoral student from the University of Arkansas.

The purpose of the study is to examine the relationship between student learning preferences (specifically, andragogical assumptions) and student age, race, gender, socioeconomic status, college readiness, class standing, program type, and/or culture.

The hope is that with a better understanding of how students prefer to learn, we as educators can better serve them.

Students who complete the survey also have the option to enter to win a $20 Amazon gift card.

Please encourage your students to check their email for details on the survey.

Any questions related to the survey should be sent to Emilee Sides at essides@uark.edu or Dr. Kevin Roessger at kmroessg@uark.edu.

Thank you.

Appendix D: Second and Final Email to Students
(sent one week after initial student email)

Subject: Help a Fellow Student and Enter to Win a $20 Amazon Gift Card

One week ago, you received an invitation to participate in a survey for designed for Arkansas community college students. The survey hopes to learn more about how community college students like yourself prefer to learn.

Thank you to those of you who have already responded to the survey. Your input is essential to the completion of this study.

However, additional responses are still needed. If you have not yet completed the survey, please use think link below. On average, it takes less than five minutes to complete.
link posted here
By completing the survey, you are agreeing to allow your responses to be used in the research. If you wish to be entered into the drawing for one of ten $20 Amazon gift cards, please enter your school email address on the page after the survey.

Any questions related to the survey should be sent to Emilee Sides at essides@uark.edu or Dr. Kevin Roessger at kmroessg@uark.edu. If you have questions regarding your rights as a participant, please contact the University of Arkansas Institutional Review Board at irb@uark.edu.

Thank you.

Appendix E: IRB Approval

UNIVERSITY OF ARKANSAS

To:	Emilee S. Sides
From:	Douglas J Adams, Chair IRB Expedited Review
Date:	10/27/2020
Action:	**Exemption Granted**
Action Date:	10/27/2020
Protocol #:	2009288414
Study Title:	Andragogy for All? A Look at Arkansas Community College Students' Preferences for Andragogical Assumptions

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.