

**Evidence-Based Instructional Strategies for Adult Learners:
A Review of the Literature**

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Abstract

Students over age 25 are an increasingly high percentage of higher education enrollments. These students, known as adult learners, enter college with life and work experiences as well as responsibilities, so they have different educational needs, expectations, and interests than traditional college students. The theory of adult learning that addresses the best ways to teach adult learners is called andragogy. While the construct of andragogy is subject to debate, the education field draws on its findings to design learning environments for adult learners. Academic libraries can also apply andragogy in their information literacy and instructional practices. This literature review examines articles in education and library science and summarizes evidence-based instructional strategies that address adult learning needs. The review also identifies the need for further studies on applying andragogy in library instruction.

Keywords: library instruction, adult learners, andragogy, libraries, instructional design, information literacy



Introduction

The increasing enrollment of adult learners, students older than the traditional college age of 18 to 25, is an ongoing trend in higher education. They are a growing population in online and face-to-face classes at U.S. colleges and universities. Data from the U.S. Department of Education show the percentage of adult learners is growing in proportion to the total number of students enrolled. In response to this development, articles in the education and library science literature address teaching age-diverse courses and meeting the unique needs of adult learners in the classroom and the library. Examining these articles can generate best practices for instruction and provide improved research assistance to adult learner constituencies. However, more research is needed in this area for generalizability, particularly studies based on populations larger than one particular course or student group.

Definition of Population

The adult student population is known by many terms in the education and library science literature. *Adult learners, non-traditional students, lifelong learners, re-entry students, mature learners, or second-chance students* are some of the common descriptors used by researchers (Gust, 2006). *Adult learners* appears to be term most used in recent research and is viewed as an accurate, descriptive, and non-pejorative name for this group (Donavant, Daniel, & MacKewn, 2013; Kenner & Weinerman, 2011; Marschall & Davis, 2012). This paper will use *adult learners* or *adult students* interchangeably when referring to student age 25 and older enrolled at higher education institutions.

Statistics on Adult Learners in Higher Education

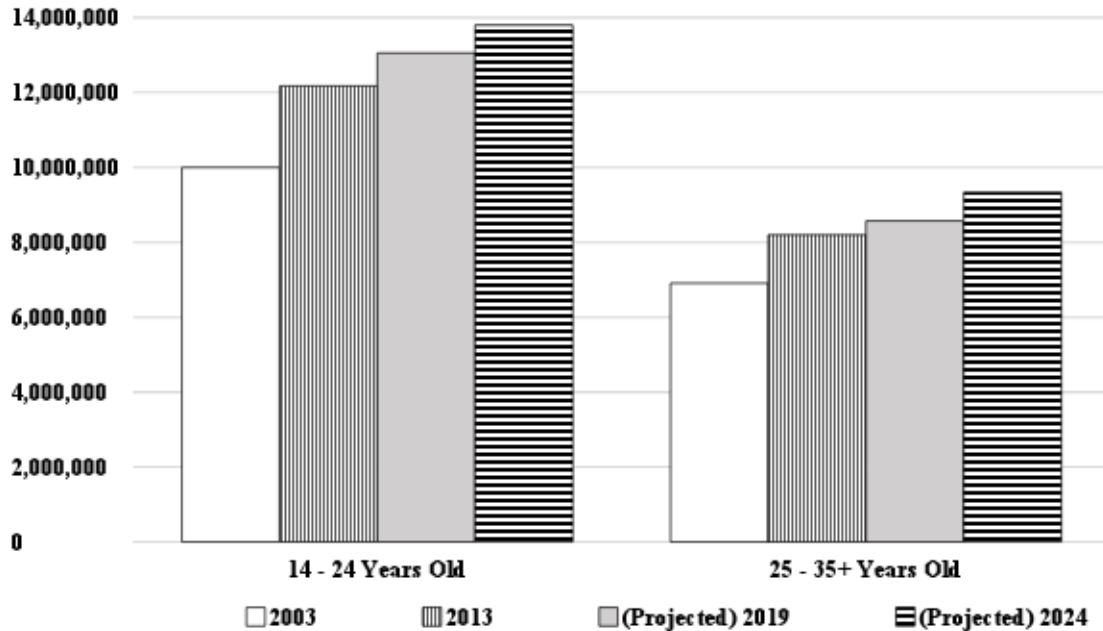
Information from the U.S. Department of Education's National Center for Education Statistics (NCES) show consistent increases in the number of adult learners at U.S. degree-granting institutions of higher education. Enrollment for all students grew 11 percent from 1991 to 2001, and then an additional 20 percent from 2003 to 2013. In 2003, just over 10 million students age 14 to 24 enrolled at degree-granting postsecondary institutions while almost 7 million students age 25 and older were enrolled. Ten years later, over 12 million younger students and over 8 million adult students were enrolled (U.S. Department of Education, 2014).

NCES statistics from 2000 to 2011 show a large enrollment growth of all students, and while this dramatic growth is expected to slow in the near future, they predict that adult student enrollment will increase at greater rates (U.S. Department of Education, 2012). NCES projects adult student enrollment to increase by 14%, compared to 13% for traditional aged students who had larger enrollment increases in the past (U.S. Department of Education, 2014). The number of enrolled adult learners is projected to increase to 8.5 million by 2019 and then to 9.3 million by 2024; the number of enrolled adult students will increase more quickly than the number of younger students enrolled as noted in Figure 1 (U.S. Department of Education, 2014, Table 303.40).

Enrollment increases in adult students will have an impact on the overall student population and demographics of higher education institutions and also within the classroom. Where previously the majority or even the entirety of students enrolled in undergraduate programs were under age 25, institutions can expect to see more students who are 10 or more years older. These adult students bring extensive life and work experiences to their studies and into their classrooms, so they have different educational

needs, expectations, and interests than those of younger students.

FIGURE 1 - TOTAL FALL SEMESTER STUDENT ENROLLMENT IN DEGREE-GRANTING INSTITUTIONS BY AGE: SELECTED YEARS, 2003 THROUGH 2024



Instructors and librarians will need to address the needs of adult students by using instructional practices based on andragogical concepts to ensure these students receive a quality education. This literature review will describe some evidence-based strategies for librarians who work with adult learners.

Methods

A review of the education and library science literature was performed using the online databases *Education Source*, *ERIC*, *JSTOR*, *LISTA*, and *ProQuest Dissertations and Theses*. The search concepts used were ‘adult learners,’ ‘andragogy,’ ‘academic instruction,’ and ‘librarians.’ The articles sourced, which cover over 20 years of research on instructional strategies for adult learners, enable clear conclusions on the best practices for applying andragogy for teaching and learning in academic libraries.

Literature Review

Theory of Andragogy

Andragogy is the science of adult education; it focuses on the learning process and the learner's internalized needs rather than the teaching process and the teacher's outcomes. The principles of andragogy were developed to create educational philosophies that focus on the needs of adult students and incorporate their life and career experiences (Lindeman, 1926; Knowles, 1980; Knowles, Holton, & Swanson, 2012).

The central tenets of andragogy, as developed by Malcolm Knowles (2012) and based on the original theories of Eduard Lindeman, are: "(1) the learner's need to know, (2) self-concept of the learner, (3) prior experience of the learner, (4) readiness to learn, (5) orientation to learning, and (6) motivation to learn" (p. 3). In the classroom, this translates to a "focus on learning rather than on teaching," and on lifelong learning to where students are taught skills and strategies they can apply to their career(s) and throughout their lifespan (Knowles, 1980, p. 18). These concepts are now familiar to most educators since Lindeman and Knowles' original work, and many recent education studies use the principles of andragogy.

General Education Research

Andragogy has been examined within various aspects of higher education instruction. One study by Kenner and Weinerman (2011) addressed how adult learning theory can help instructors understand the uniqueness of adult learners and that andragogy "can provide specific tools that help adult learners integrate into the college or university environment and increase their chances for success" (p. 88). Andragogy can also be applied to teaching specific topics. Freedman, Echt, Cooper, Miner, and Parker

(2012), applied these strategies to health literacy, providing a case study of andragogy in action, and Marschall and Davis (2012) wrote about andragogical principles being used to teach critical reading skills. In 2013, Rapchak and Behary expanded on previous andragogy research by applying the theory to online education, addressing how to teach digital non-natives in the online environment.

Andragogy has also been studied among instructors and students. Gilstrap (2013) showed its use in curriculum design to make course and program outcomes more relevant to students. Two studies, Journell and Webb (2013) and Donavant, et al. (2013) wrote about mixed-age college classes, their effect on classroom dynamics, and the issues instructors will need to address, such as “what adult learners want, expect, and need from the classroom experience” (Donavant et al., p.133). A similar study by Day, Lovato, Tull, and Ross-Gordon (2011) interviewed faculty for their perceptions of adult learners and how the faculty had adapted their teaching to incorporate andragogy strategies. These and other studies have shown that andragogy is beneficial to all adult learners, whether they are emerging adults, young adults, or mature adults (Conway, 2009).

Some studies have criticized andragogy and discussed potential weaknesses in the theory (Holton, Swanson, & Bates, 2009; Rachal, 2002). Their primary concern is that andragogy does not have a standardized definition and is subject to various meanings and interpretations. However, a survey of the recent literature shows agreement across many studies in defining and interpreting andragogy. Holton et al. (2009) and other more recent studies have created instruments to measure teaching and learning involving andragogy. Ongoing research on the validity of andragogy should resolve any remaining concerns about the theory.

Academic Libraries Research

As andragogy has been applied successfully in classroom settings, academic librarians have also seen its usefulness for library instruction. Gust (2006) applied adult learning strategies to information literacy instruction after noting that adult learners who return to academic settings face many challenges, especially the widespread technology changes in academia. These “high-tech surroundings” can cause adult learners to “return to the college classroom with more anxiety, fear, uncertainty, and less self-confidence in use of computer technology and searching the internet than traditional students” (Gust, 2006, p. 557-558). Librarians and information literacy instructors need to work with these students to help them develop the tools and skills they need to overcome their anxiety and lack of confidence.

Many researchers suggest ways to incorporate andragogy into library instruction and provide additional reasons for doing so (Chen, 2010; Dahlen, 2012; Hays, 2014; Lange, Canuel, & Fitzgibbons, 2011). Cooke (2010) listed strategies for using information literacy instruction to help adult learners decrease their fear and improve their ability and confidence for library research. Cooke argues that the academic library is an important venue for adult education and independent lifelong learning, so librarians need to understand and apply andragogy to instruction (p. 208). Currie (2000) expanded on these themes with a focus on facilitating adult student learning. A key is that librarians and library instructors must show respect, patience, and understanding towards adult learners for authentic learning to take place.

Instructional Strategies

The education and library science literature provides evidence-based

instructional strategies recommended for academic librarians who work with adult learners. These strategies fall within the following broad themes: the instructor's role, the diversity of learners, using constructivist approaches, and the nature of learning experiences.

The instructor's role. One prominent theme in the literature is the instructor's role in the classroom with adult learners (Cooke, 2010; Currie, 2000; Day et al., 2011; Hays, 2014; Kiely, Sandmann, & Truluck, 2004; Rapchak & Behary, 2013). First, Currie's (2000) article advocated for the role of the instructor as that of a proactive mediator and facilitator of learning. Currie saw the most benefit for adult learning when the instructor was a collaborative colleague who showed respect and understanding to students, and empowered them in their learning. Overall, the library instructor should be conscious of their role as a guide to students achieving their own learning goals.

More recent research agrees, reasoning that instructors should acknowledge students' life experience and prior knowledge (Day et al., 2011; Hays, 2014). Rapchak et al. (2012) recommended that instructors should not assume skills or past experiences of adult learners with information literacy; instead, they should take time to get to know their students' knowledge and needs. Kiely et al. (2004) and Rapchak and Behary (2013) suggest that adult learners be able to share their past experiences as case studies; this is another way that the instructor can act as a learning facilitator while showing respect to the adult learners and their experiences. Rather than play the instructor role of the sage-on-the-stage, the instructor recognizes that all adults in the classroom can learn from each other. Also, Cooke (2010) points out that instructors who make the effort to develop personal connections with learners will ease their library-related anxiety and help overcome any

psychological barriers from previous library experiences.

The diversity of learners. Another theme in the literature is the importance of understanding diversity among adult learners. While many articles address the importance of acknowledging students' prior experiences, instructors also need to recognize and respond to the complications of group dynamics among students who may have vastly different needs and levels of prior knowledge (Donavant et al., 2013; Freedman et al., 2012; Imel, 2001; Knowles et al. 2012; Lange, Canuel, & Fitzgibbons, 2011; Rapchak & Behary, 2013). Imel (2001) and Lange et al. (2011) stress the importance of being sensitive to students' differences without over-generalizing based on stereotypes of race, culture, or age. Library instructors should also understand and acknowledge the generational viewpoints, values, attitudes, cultures, and preferences represented in the classroom and should use curriculum materials that are inclusive and culturally relevant to all of the students (Donavant et al., 2013).

Two publications by Freedman et al. (2012) and Knowles et al. (2012) specifically mention the importance of the classroom or learning environment in respecting diversity among adult students. The classroom should be an emotionally safe and sympathetic space for learning where adult students feel encouraged by the instructor and by each other, and are free to ask questions and admit difficulties. The classroom should also be where diverse experiences, viewpoints, and perspectives are acknowledged and respected by all. The important thing is to value the diversity of adult learners and make the learning environment a place where they can share, explore, and continue to grow (Knowles et al., 2012).

Imel (2001) focuses specifically on race and cultural factors, and how they can

affect adult learners' academic experiences. As Imel (2001) reports, "race has been relatively unexamined in research on adult students in higher education," so it is not known how much impact this may have (p. 4). Imel also recommends high levels of student involvement in the learning environment and a curriculum that is inclusive and culturally relevant. This is a best practice that applies to instruction of all adult learners, regardless of their race, gender, culture, class, educational background, or other factors. If the students are encouraged to interact with and reflect on the material, and if the curriculum is inclusive and relevant to students' past experiences and future goals, they will be self-motivated to learn (Chen, 2014).

Using constructivist approaches. The education literature strongly recommends applying constructivist theories to the practice of adult learning. One constructivist approach, as described by several articles, is to focus on teaching critical thinking skills using inquiry, discovery, and problem-based learning strategies (Allen, 2008; Elmborg, 2010; Stern & Kaur, 2010). By focusing on practical, big-picture information literacy and critical thinking skills, the goal for this approach is to enable students to be independent, lifelong learners. This may come in the form of developing library instruction to adult learners' needs outside of any one course or outside of the classroom (Rapchak et al., 2012), or focusing on improving the overall academic success and engagement of adult learners (Stern & Kaur, 2010).

Another constructivist practice is to use scaffolding in instruction. Scaffolding is breaking down complicated tasks or skills into small components that can be completed one at a time. This makes the task less stressful and more manageable, and helps adult learners see their progress (Gust, 2006; Kenner & Weinerman, 2011; Rapchak & Behary,

2013; Rapchak et al., 2015). Various means of scaffolding can be applied to information literacy instruction with adult learners.

Scaffolding is especially important for first-year adult students who may need additional guidance as they transition into an academic environment. Library and course-related technology can be challenging for returning adult learners to use since the new technology, by itself, can cause anxiety. Instructors should start by introducing resources and skills that learners are likely to know, and then progress by teaching the students how to use them in other settings. Instructors can also highlight the students' successful past experiences to teach them new skills and their benefits. In doing this, learners see them as beneficial for later learning rather than hoops to jump through (Cooke, 2010; Kenner & Weinerman, 2011; Rapchak & Behary, 2013).

Providing instruction using a scaffolding approach also means offering adult learners with multiple opportunities for learning. Students in a one-shot instruction session should be told that it not their last opportunity for library assistance, but can be the beginning (Imel, 2001; Lange et al., 2011). Rapchak et al. (2012) recommended that instruction may be delivered in multiple ways such as providing skill-focused workshops, having an embedded librarian within courses, or by creating interdisciplinary instructional opportunities with instructors or teaching faculty.

The nature of learning experiences. A theme present throughout many adult learning studies is the students' preferred nature of learning experiences. The literature recommends that learning experiences are well-structured, practical, and collaborative in order for the students to have the best learning outcomes. The learning environment needs to be logically structured, and students need to be informed of this. The instructor can do

this by sharing the lesson plan with adult learners so they know how the class will be organized, the connections between separate tasks, and how the course or session objectives will be met (Day et al., 2011). This structure will be appreciated by all goal- or task-oriented learners, and will provide guidance to help anxious learners know the steps that will be covered. (Gust, 2006; Kenner & Weinerman, 2011).

Another way to provide structure is to create supplementary instructional resources such as handouts or online guides. These resources can show the connections between the topics and tasks discussed in class, and also help prevent information overload if the information on them is carefully curated to contain the most relevant resources for particular courses or subjects (Lange et al., 2011). Although library instructors may be tempted to include everything they might find useful, these sources should not provide exhaustive bibliographies on a topic. Instead, the sources should be used as jumping-off points that do not replace learner discovery or future library instruction (Lange et al., 2011).

To make learning practical, instructors need to identify students' prior experiences and connect them with new instructional topics. Students' prior learning can be identified by pre-assessments to determine their information literacy strengths and needs, perceived confidence levels, and previous uses of information sources (Dahlen, 2012). Also, new learning experiences should be taught within the context of real-life conditions. Cooke (2010) and Gust (2006) both describe scenarios where instructors provided students with specific examples of learning application. As a result, the students were able to make connections between their learning with their outside lives. Information literacy skills can be shown to be immediately relevant to the students when the skills are connected to their

courses, career goals, and lifelong learning.

In addition to creating a structured learning environment, learning activities should also be collaborative (Donavant et al., 2013; Freedman et al., 2012; Kenner & Weinerman, 2011; Quinn & Leligdon, 2014). Adult learners can benefit from exchanging their experiences with each other while connecting them to new learning. Lesson plans should provide abundant opportunities for peer-to-peer learning, in-depth student discussions, and other types of experiences where adult learners and their younger classmates can share their knowledge with each other (Currie, 2000; Day et al., 2011; Donavant et al., 2013; Imel, 2001; Jacobs, 2007). Learners should be given time to discuss their personal research interests and educational goals. Class objectives can be established or revised to cover information that is of high interest to the learners.

Conclusion

This review of education and library science literature offers recommended instructional strategies for academic librarians who work with adult learners. The theory and applications of andragogy can provide librarians in academic and other settings with useful tools for their instructional practice, which then can be used to address the needs of adult learners and to develop their information literacy skills for academic and lifelong learning uses.

Although the reviewed articles provide recommendations for applying andragogy in library instruction, most of the articles were based on small case studies or used a low level of empirical research. Few original research studies have been completed on this topic. Additional and more robust studies are needed to establish that andragogy is transferable to library settings, and to further examine and address the needs of adult

learners in library instruction settings. This lack of higher level research also extends to the theory of andragogy itself, as more research is needed to evaluate the theory put forward by Knowles (1980).

Despite the minimal availability of high-level research on andragogy and its application in libraries, the increasing numbers of adult learners in college and university settings establishes a need for instructional strategies that respond to these students' needs. Higher education has had to adapt its services and pedagogical methods to accommodate increasing numbers of non-traditional students such as minorities and the economically disadvantaged. This needs to continue in order to make higher education accessible to its growing segment of independent, working, and older students. This literature review was intended to extend the concept of andragogy into libraries and their instructional settings, and to encourage further research and inquiry in this emerging area.

References

- Allen, M. (2008). Promoting critical thinking skills in online information literacy instruction using a constructivist approach. *College & Undergraduate Libraries*, 15(1-2), 21-38. <https://doi.org/10.1080/10691310802176780>
- Chen, J. C. (2014). Teaching nontraditional adult students: Adult learning theories in practice. *Teaching in Higher Education*, 19(4), 406–418. <http://dx.doi.org/10.1080/13562517.2013.860101>
- Conway, W. (2009). *Andragogy: Does one size fit all? A study to determine the applicability of andragogical principles to adult learners of all ages* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3369650)
- Cooke, N. A. (2010). Becoming an andragogical librarian: Using library instruction as a tool to combat library anxiety and empower adult learners. *New Review of Academic Librarianship*, 16(2), 208–227. <http://dx.doi.org/10.1080/13614533.2010.507388>
- Currie, C. L. (2000). Facilitating adult learning: The role of the academic librarian. *The Reference Librarian*, 69/70, 219-231. http://dx.doi.org/10.1300/J120v33n69_21
- Dahlen, S. (2012). Seeing college students as adults: Learner-centered strategies for information literacy instruction. *Endnotes*, 3(1), 1-18. Retrieved from <http://www.ala.org/rt/sites/ala.org.rt/files/content/oversightgroups/comm/schres/endnotesvol3no1/1seeingcollegestudentsasadults.pdf>
- Day, B. W., Lovato, S., Tull, C., & Ross-Gordon, J. (2011). Faculty perceptions of adult learners in college classrooms. *The Journal of Continuing Higher Education*,

59(2), 77–84. <http://dx.doi.org/10.1080/07377363.2011.568813>

Donavant, B. W., Daniel, B. V., & MacKewn, A. S. (2013). (Dis)connected in today's college classroom? What faculty say and do about mixed-age classes. *The Journal of Continuing Higher Education*, 61(3), 132-142.

<http://dx.doi.org/10.1080/07377363.2013.836811>

Elmborg, J. (2010). Literacies, narratives, and adult learning in libraries. *New Directions For Adult & Continuing Education*, (127), 67-76.

<http://dx.doi.org/10.1002/ace.382>

Freedman, A. M., Echt, K. V., Cooper, H. L. F., Miner, K. R., & Parker, R. (2012). Better learning through instructional science: A health literacy case study in “how to teach so learners can learn.” *Health Promotion Practice*, 13(5), 648-656.

<https://doi.org/10.1177/1524839911432928>

Gilstrap, D. L. (2013). Why do we teach? Adult learning theory in professional standards as a basis for curriculum development. *College & Research Libraries*, 74(5), 501-518. <https://doi.org/10.5860/crl12-334>

Gust, K. J. (2006). Teaching with *Tiffany's*: A “go-lightly” approach to information literacy instruction for adults and senior learners. *Reference Services Review*, 34(4), 557-569. <https://doi.org/10.1108/00907320610716440>

Hays, L. I. (2014). Teaching information literacy skills to nontraditional learners. *Kansas Library Association, College & University Libraries Section Proceedings*, 4(10), 2-6. <https://doi.org/10.4148/2160-942X.1036>

Holton, E. F., Wilson, L. S., & Bates, R. A. (2009). Toward development of a generalized instrument to measure andragogy. *Human Resource Development*

- Quarterly, 20(2): 169-193. <https://doi.org/10.1002/hrdq.20014>.
- Imel, S. (2001). *Adult learners in postsecondary education. Practice Application Brief No. 17*. U.S. Department of Education. Office of Educational Research and Improvement. Washington, D.C.: ERIC. Retrieved from <https://eric.ed.gov/?id=ED456334>
- Jacobs, W. N. (2007). Online discussion in a hybrid information literacy credit course. *Education Libraries, 30*(2), 18-26. Retrieved from <http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ849015>
- Journell, W., & Webb, A. W. (2013). When one-size methods class doesn't fit all: A self-study of teaching traditional and alternative licensure students together. *Teacher Education and Practice, 26*(1), 9-27. Retrieved from <https://eric.ed.gov/?id=EJ1002361>
- Kenner, C., & Weinerman, J. (2011). Adult learning theory: Applications to non-traditional college students. *Journal of College Reading and Learning, 41*(2), 87-96. <http://dx.doi.org/10.1080/10790195.2011.10850344>
- Kiely, R., Sandmann, L. R., & Truluck, J. (2004). Adult learning theory and the pursuit of adult degrees. *New Directions for Adult and Continuing Education, 103*, 17-30. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/ace.145/abstract>
- Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy* (Revised and updated). Cambridge: New York.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2012). *The adult learner: The definitive classic in adult education and human resource development*. 7th ed. Routledge: New York.

- Lange, J., Canuel, R., & Fitzgibbons, M. (2011). Tailoring information literacy instruction and library services for continuing education. *Journal of Information Literacy*, 5(2), 66-80. <https://doi.org/10.11645/5.2.1606>
- Lindeman, E. C. (1926). *The meaning of adult education*. New Republic: New York.
- Marschall, S., & Davis, C. (2012). A conceptual framework for teaching critical reading to adult college students. *Adult Learning*, 23(2), 63-68. <https://doi.org/10.1177/1045159512444265>
- Quinn, T., & Leligdon, L. (2014). Executive MBA students' information skills and knowledge: Discovering the difference between work and academics. *Journal of Business & Finance Librarianship*, 19(3), 234-255. <https://doi.org/10.1080/08963568.2014.916540>
- Rachal, J. R. (2002). Andragogy's detectives: A critique of the present and a proposal for the future. *Adult Education Quarterly*, 52(3): 210-227.
- Rapchak, M., & Behary, R. (2013). Digital immigrants, digital learning: Reaching adults through information literacy instruction online. *Journal of Library and Information Services in Distance Learning*, 7(4), 349-359. <https://doi.org/10.1080/1533290X.2013.842950>
- Rapchak, M. E., Lewis, L. A., Motyka, J. K., & Balmert, M. (2015). Information literacy and adult learners: Using authentic assessment to determine skill gaps. *Adult Learning*, 26(4), 135-142. <https://doi.org/10.1177/1045159515594155>
- Stern, C., & Kaur, T. (2010). Developing theory-based, practical information literacy training for adults. *International Information and Library Review*, 42(2), 69-74. <https://doi.org/10.1016/j.iilr.2010.04.011>

U.S. Department of Education, National Center for Education Statistics. (2012). *Digest of education statistics, 2012* (NCES 2014-015), Chapter 3: Postsecondary education.

Retrieved from http://nces.ed.gov/programs/digest/d12/ch_3.asp

U.S. Department of Education, National Center for Education Statistics. (2014). *Digest of education statistics, 2014* (NCES 2016-006). Retrieved from

<https://nces.ed.gov/programs/digest/d14/index.asp>