Technological Solutions to Aid Self-directed Learners of Varying Learning Styles Develop Foundational Information Literacy Skills

Amy Leota Shropshire

MLIS Student

University of Alabama

Technological Solutions to Aid Self-directed Learners of Varying Learning Styles Develop Foundational Information Literacy Skills

Introduction:

My proposed research project is intended to facilitate self-directed and non-academic scholarship by designing and testing various web-based tools that can assist individuals of various learning styles. The particular learning scenario I am using is information literacy, so I will attempt to find appropriate web-based tools to teach foundational information literacy concepts from the perspectives of various learning styles in an interesting and engaging manner. The quantity and quality of information available through web-based searches is both overwhelming and myriad, and information literacy skills in distinguishing the validity and trustworthiness of information are foundational to self-directed learning.

While the relevance of such tools to academic libraries is clear, my particular focus is on public libraries and the free services they offer to the general public. In an age where broad swaths of the totality of human knowledge are freely available online for those that know how to search and access this information, the advancement of human knowledge need no longer be limited to academic institutions.

Problem Statement:

Traditionally, the front line and cutting edge of technological innovation and problem solving seems to stem more from academic library research, since the bulk of research positions are filled in an academic setting. These solutions sometimes have difficulty in transversing the gap between academic and public libraries, even when such methodological and technological advances could help in bridging gaps between patrons and resources in the community. In particular, a current study on the front line of academic research is the optimization of resource interfaces and outreach strategies for individuals with varying learning styles and intellectual capacities. I believe this research may be even more instrumental if examined and transplanted more into the public library sector, since intellectual impairments and atypical learning styles frequently find difficult in accessing and utilizing educational resources for self-improvement, especially in the public library setting. Public libraries serve a far more diverse group of patrons than academic libraries do in terms of intellectual capacities. Often, however, because of the inaccessibility of important published academic research to public librarians, such helpful advances are not discovered, or considered too difficult to meaningfully implement.

A thoughtful and creative analysis of the complex and often inaccessible relevant studies and pieces of academic literature may lead to a variety of simplified tutorials, more accessible descriptions, and easier to implement new systems for public librarians to improve service to the general public. It is in the best interest of the general public to maintain accessibility to community members of all varying levels of intellectual acuity, as well as various types of learning styles, strengths, and weaknesses. I would argue that providing a patron with greater education and self-improvement resources for minimal cost is a worthwhile endeavor for all public libraries.

Target Audience:

Public libraries have traditionally occupied a unique position as advocates and champions for marginalized groups, attempting to fill gaps in both technological and informational needs. Within the established literature in the Library and Information Science (LIS) field, social justice advocates work to examine systems and practices on a constant basis to assure that the systems work for those who are generally disadvantaged. Ease of access has become an understood goal for libraries to facilitate learning and personal development. Libraries are no longer simply repositories for information, but purveyors of it.

A thoughtful and creative analysis of the complex and often inaccessible relevant studies and pieces of academic literature may lead to a variety of simplified tutorials, more accessible descriptions, and easier to implement new systems for public librarians to improve service to the general public. It is in the best interest of the general public to maintain accessibility to community members of all varying levels of intellectual acuity, as well as various types of learning styles, strengths, and weaknesses. I would argue that providing a patron with greater education and self-improvement resources for minimal cost is a worthwhile endeavor for all public libraries. Thus, this study is relevant to any public librarian interested in providing greater resources and access to information.

Literature Review:

Several faculty members at University of Pretoria in South Africa have effectively combined and synthesized much of this research into a “whole brain” model of flexible learning (de Boer, du Toit, Bothman & Scheepers, 2012, p.187). This study defines specific requirements and aversions for various learning styles with clear evidence from the literature, and can easily serve as a framework for further developments to aid self-directed learners.

The study specifically mentions “the context of self-regulated learning” (p. 188) as a source of untapped potential in terms of learning outcomes, and states that this model of learning would be particularly effective for self-directed learners. Additionally, the study cites evidence that students should not only be provided with materials to complement their own individual learning styles, but challenged to “learn in modes beyond his/her comfort zone” (p. 189) and learn in multiple modes for a fuller and more comprehensive understanding of the subject. In surveys, students tend to prefer being able to use multiple distinct points of contact to facilitate learning, and approach learning objectives from multiple perspectives to greater learning efficacy and learning enjoyment (Jackson, 2014). This conceptual model seems detailed enough to provide a conceptual framework for the development of learning modules for self-directed learners.

Multiple studies have described and defined standards for pedagogical flexibility to account for multiple learning styles in theory in information literacy instructions. However, few have created practical tools to synthesize the pedagogical ideals into active techniques and tools. For example, McNicol (2015) is one of many studies theorizing on what flexible learning in information literacy instruction would look like practically. While multi-modal approaches to learning are noted as effective equalizers for age and cultural differences among learners, the literature on how to accommodate various learning styles is surprisingly lacking (Jackson, 2014).

Methodology:

The University of Pretoria study defining the whole brain theory provides a concrete theoretical framework on which to build practical tools, and other such studies provide concrete methodological tools for developing and evaluating the practical tools. Much of academic research is transferrable into practical public resources. Methodologies are no exception. Another dissertation study conducted at University of Pretoria demonstrated a precise approach to creating and assessing training modules for self-directed professional development for academic staff (Goode, 2015). It seems reasonable that this approach would also work well for self-directed learners in the public library sphere. Likewise, a 2010 study defines precise technological tools and necessary applied concepts for creating web-based modules to allow for more “self-directed, self-paced learning” (Koneru, 2010, 25).

For the proposed study, I intend to use web-development tools as outlined in *Library Hi Tech*, as well as considering the implications of fully engaging, fun learning outlined therein (Koneru, 2010). For theoretical structure I will rely on the extensive framework provided by the University of Pretoria study (de Boer et al. 2012), as well as the practical methodological framework provided by the 2015 dissertation study from the same university (Goode, 2015). In terms of content I shall consider a subject integral to ILS, information literacy instruction, around which several of these sources revolve.

This study consists of two main parts. The first is synthesizing appropriate research in various different areas in order to create a useful web-based tool. The second part is a usability testing and survey process that will provide information on the efficacy of various components of the tool as they are created. These two parts will be performed concurrently, as user input will have an effect on the way the tool’s creation proceeds during the process. The research follows the standards of action research, and will follow the basic framework of the unpublished dissertation “Using the Herrman whole brain model for mentoring academic staff” (Goode, 2015), but with several additional contexts. The focus is instead on public library patrons and self-directed learners, rather than academic staff and peer mentoring.

The tool creation portion will follow the processes demonstrated in “ADDIE: Designing web-enabled information literacy instructional modules” (Koneru, 2010), but with the particular conceptual context of the article “Constructing a Comprehensive Learning Style Flexibility Model for the Innovation of an Information Literacy Module” (de Boer, et al. 2012). Though this article does not go into extreme depth about processes for implementation, it has multiple thoroughly cited conclusions about the type of activities learners gravitate toward and struggle with, and how that relates to their primary learning style and the ADDIE study provides more in terms of process of implementation.

The process of user input will need to be ongoing to ensure that the interface remains fun and engaging. Thus, for every step in the process I will selectively identify at least five test users that either self-identify with the learning style being tested as well as those that take a simple questionnaire to identify their most probable primary learning style, based on the testing concepts outlined the 2012 learning style models. Because of the focus on self-direction and independent learning, the test results are less important overall than user self-identification, so a simple questionnaire for what basic type of learning style a user gravitates toward will be more effective than a complex test. Volunteers will be recruited from public libraries for in person focus group and interview style usability testing, and online social media questionnaires will provide greater quantitative input from a broader audience. Since this is a web-based tool focused on self-directed learning, it will be important to solicit input from broader audiences of various learning styles in the later stages of the project.

The users will test how easy the material is to understand from their various perspectives in an informal interview fashion as well as an exit questionnaire about final impressions. A secondary round of usability testing using some but not all of the original participants will determine how smooth and appropriate the transitions are between various activities. The secondary testing interview and exit questionnaire will also contain questions about any struggles the users may have with grasping the material after transitioning to a different learning style method. The qualitative and quantitative data will be repeatedly analyzed throughout the process to determine inconsistencies, errors, and flaws that need to be addressed.

Conclusion:

Given the lack of specific practical applications to the research on learning style flexible instruction, as well as the specific calls for practical application from multiple pilot studies and qualitative analyses, a specific gap appears in the body of LIS research. Pedagogical theories can only inform attitudes and strategies, and at some point practical tools and actions are necessary. The proposition of this research, then, is to bridge the gap between pedagogy and practice.

I believe that learning style flexible modules for information literacy would be particularly effective for self-directed learners, not only because of practical necessity, but also because of the foundational nature of information literacy, and its ability to provide for further learning opportunities. A good foundation in information literacy can open up entire new windows of opportunity for self-directed research and further study among what I feel is a severely disadvantaged group of learners.

References:

de Boer, A., du Toit, P. H., Bothma, T., & Scheepers, D. (2012). Constructing a comprehensive learning style flexibility model for the innovation of an information literacy module. *Libri, 62*, 186-196.

Fourie, I. (2013). Twenty-first century librarians: Time for zones of intervention and zones of proximal development?, *Library Hi Tech, 31(1),* 171-181.

Goode, H. (2015). *Using the Herrman whole brain model for mentoring academic staff* (Unpublished doctoral dissertation). University of Pretoria, South Africa.

Jackson, S. A. (2014). Student reflections on multimodal course content delivery. *Reference Services Review, 42(3)*, 467-483.

Koneru, I. (2010). ADDIE: Designing web-enabled information literacy instructional modules. *Journal of Library and Information Technology, 30(3),* 23-34.