Technological solutions to aid self-directed learners of various learning styles develop foundational information literacy skills: A literature review

I.

New technological developments are constantly and irresistibly reshaping the way we interact with one another. Modern technology has the ability now to facilitate communication and learning from remote locations. Entire bodies of human knowledge are available online for perusal and critique. Learning is becoming less of a formalized process, and more a process of dedication and ingenuity. Self-directed learning is a new frontier for education and libraries occupy a position ideally suited to offering the types of resources necessary to encourage and enable self-directed study.

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. Economic disadvantage can often be partially mitigated by using the resources at the public library. While not quite as convenient as having a home personal computer, library computers serve to allow the economically disadvantaged an access point to the information superhighway.

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. Since 1949 the Principle of Least Effort has become a part of the LIS lexicon, speaking to the general principle that libraries should create ease of access for patrons (Zipf 1949). Scholars in the field of LIS have since attempted to bring resources to the patron where they are, both mentally and physically. 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.

This is particularly true of academic libraries where learning outcomes are meticulously cultivated and measured. Numerous studies are devoted to optimizing student’s academic potential and ultimate success. LIS literature is rife with both quantitative and qualitative analysis of learning outcomes and preferences based on adjustments to existing educational techniques. However, this extensive body of research focusing on college faculty and students is not often translated into the public sphere.

The social justice tradition of advocating for the disadvantaged in LIS literature seems at odds with the lack of research done for and about public libraries. Academic libraries are certainly ideal subjects for research, considering that research is normally done by librarians actively employed and involved with academic institutions. However, the social justice principles of LIS necessitate that we take a more involved role both in studying the needs of public libraries, but also transplanting new and innovative concepts between academic and public libraries. This is because public libraries form the backbone of social justice work in LIS.

Public libraries serve the needs of the economically disadvantaged, and also the educationally disadvantaged. People of limited incomes can often use the public library as a technological and informational equalizer. These same people are often unable to attend academic institutions because of the associated costs. Still others are limited by mental and intellectual disabilities and disorders, and so have difficulty with structured academic learning. Many have difficulty with such structured learning, simply because of a lack of flexible instruction. With self-directed and self-paced learning on the rise, more innovative research and resources should be expanded to the public library sphere, which is the ideal equalizer for self-directed learners.

Self-directed learners are often so because their particular style of learning does not fit easily into an academic setting. Extensive research has been done on learning styles and the efficacy of flexible learning. 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.

Built upon an extensively researched whole brain model, the study states that the particular context of information literacy as applied to learning style research is fairly new within the field. The authors have, in their own words “built on his four quadrant model by integrating different ways of facilitating learning, learning preferences, learning avoidances, student expectations and aspects with which students may struggle, all in one comprehensive model” (p. 189). This conceptual model seems detailed enough to provide a conceptual framework for the development of learning modules for self-directed learners.

II.

One of the main foundational roles libraries play is in information literacy instruction. Much of the literature on effective information literacy instruction focuses on academic institutions rather the self-directed learners that often utilize public library resources for personal academic growth and development. The false dichotomy of technological natives versus immigrants demonstrates the necessity of multiple learning style flexibility for self-directed learners (Harris, 2010). New technology is demonstrably difficult to learn for some, regardless of age or familiarity with other technologies. Some of this difficulty can perhaps be explained and minimized by providing instruction in multiple learning styles, as shown in the University of Pretoria study (2012).

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. Additionally, the foundational objectives of flexibility lead to the question of scale. How universal can a system be, while still being flexible enough for a broad array of learners? (McNicol, 2015).

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). Methods of teaching a diverse student body need to take into account multiple learning styles to be effective, and the same could be said of self-directed learners. 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).

Public libraries, while ideally situated for facilitating self-directed learning, are also ideally situated to prevent or neglect this role. For example, a study at the same University as the research on more effective learning whole brain theories of learning (de Boer et al., 2015) indicated that staff underutilize available tools and resources, and conclude that student underutilization is a probably result (Parbhoo, 2016). One reason for this is a lack of time for true learning in professional development activities. There is “often no time left for reflection and actually incorporating the new knowledge. We gain factual knowledge, but our practices stay very much the same” (Fourie, 2013, p.173).

III.

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.

In terms of content, information literacy instruction falls under the prevue of libraries, academic and public alike. The usefulness of foundational practical tools for promoting information literacy among a varied array of learners cannot be underscored enough. Information literacy is a foundational skill from which a broad array of educational options opens up to all learners, particularly self-directed learners. Focusing specifically on outcomes to aid self-directed learners is a choice as well to bridge a gap. Since much research is focused on students and faculty of academic institutions, the choice to focus on self-directed learners is a nod to the importance of public libraries, and their position in aiding and advocating for the disadvantaged.

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).

While the LIS literature contains a breadth of information on how we ‘should’ pedagogically approach learners of various styles, there is a distinct lack of, and call for, tools to facilitate concrete action. 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.

A set of comprehensive tools that accommodate students with various learning style preferences and aversions has yet to be developed to specifically target self-directed learners. While information literacy instruction is a well-researched area, I find that the intersection of information literacy instruction and learning style flexibility has yet to be transplanted into the public library sphere, where many self-directed learners call home. I feel it is the responsibility of LIS professionals to advance human knowledge, particularly while advocating for the disadvantaged. 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.

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