Evidence Based Library and Information Practice

Motivational Design and Problem-Based Learning May Increase Student Engagement in Information Literacy Instruction Sessions

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B **Evidence Based Library and Information Practice**

Evidence Summary

Motivational Design and Problem-Based Learning May Increase Student Engagement in Information Literacy Instruction Sessions

A Review of:
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Abstract

Objective – To determine whether the use of the ARCS (Attention, Relevance, Confidence, and Satisfaction) Model of Motivational Design, combined with the Problem-Based Learning approach, improves the skills, confidence, and perception of workshop relevance among non-traditional students in information literacy sessions.

Design – Experimental study, one group pre-test and post-test.

Setting – Community college in Denver, Colorado, United States.

Subjects – 41 community college students.

Methods – A convenience sample of three community college student groups each attended an information literacy session. The session was constructed using principles and strategies outlined in the ARCS Model of Motivational Design and the Problem-Based Learning approach. Pre-test and post-test instruments were developed by the author after a literature review. The students were given the information literacy-related pretest before the session. After receiving instruction, the comparable posttest (with different literacy challenges) was administered.

Main Results – A comparison of the pre-test and post-test results showed that there were increases in the students' search skills; their confidence in their own search skills; and their

perceptions of workshop relevance in relation to their needs and to real-world situations.

Conclusion – This study focuses on the use of motivational design for information literacy instruction. It addresses a gap in the research literature, as it explicitly examines issues of concern regarding the instruction of non-traditional students. The conjunction of the ARCS Model and Problem-Based Learning is considered to be an effective strategy for improving learning and perceptual outcomes for non-traditional students in information literacy contexts. This is important because: 1) information literacy skills are a central aspect of successfully transitioning from the educational setting to the modern workplace; 2) increased confidence can enhance students' sense of self-empowerment and self-efficacy, as well as decreasing "library anxiety"; and 3) establishing a sense of the personal relevance of information literacy engages students with tools that they can and will actually use in work and life situations.

In addition, the author connects these findings to two other areas. One is the new ACRL (Association of College and Research Libraries) *Framework for Information Literacy for Higher Education*; the author notes that "threshold concepts", defined by Roberts as "big picture ideas that are foundational to the field", relate best to teaching techniques such as problem-based learning. The other is the concept of metacognition, which is an aspect of metaliteracy; the author states that the study's information literacy session addressed three of four metaliteracy goals being considered. Future avenues of research and collaboration will include librarians working with learning scientists around the *Framework* content; finding new and engaging methods for teaching literacy concepts and assessing learning; incorporating metacognitive awareness into teaching and assessment; and specifically focusing on transferable skills and knowledge, in the service of preparing non-traditional students for the world of work.

Commentary

As the modern workplace becomes more complex and information-driven, it is increasingly important that we engage students with improving their information literacy; this is especially the case for non-traditional students. This study makes important contributions: it addresses the gap in the literature regarding non-traditional students, and it tests the unusual combination of the ARCS Motivational Design model with the Problem-Based Learning approach (the author claimed to be the first to do this, but there is an earlier study that also uses these two methods in combination (Chang and Hsu, 2016)).

For this evidence summary, the paper's methodologies were systematically assessed using Glynn's (2006) critical appraisal checklist. A number of issues arise in comparison with the checklist, most of which are included in the paper's limitations section. These include: the use of a convenience sample rather than random selection; the resulting demographic profile of subjects not matching the student population from which they were drawn; the use of only one group for pre-testing and post-testing rather than using a control group; the subjectivity inherent in using self-reporting; the lack of a validated instrument; and the absence of testing the longer-term retention of the benefits reported at the end of the class. In addition, the instrument was only tested in one location, meaning that multiple types of educational settings and types of non-traditional students were not considered. For these reasons, although the author's findings were positive on all outcomes, the title of this summary uses the word "may". Additionally, as Gross and Latham (2013) note, an increase in skills does not necessarily raise students to proficiency; attainment of information literacy is complex, so further work may be necessary to ready students for the workforce.

The author also focuses on two topics that connect with the research; metacognition and threshold concepts (as outlined in the ACRL *Framework for Information Literacy for Higher*

Education). The focus on metacognition arose from the literature review, but it was not considered in depth in the study, as the study was already testing two other learning models in a detailed way. Therefore, this focus could have been saved for another paper. However, there is still a connection with the ACRL *Framework*'s "threshold concepts": better self-cognition leads to better transfer of skills between settings and "transferability" can be considered one of the concepts. Cited author Kuglitsch (2015) explicitly suggests teaching toward transferability of knowledge and skills, so that students can connect the big picture of information literacy to their disciplinary environments. Likewise, cited author Lloyd (2013) exhorts instructors to incorporate the transition to the workforce in student information literacy sessions. Thus, transferability is arguably the "big picture" for Roberts' study. Future work could fruitfully focus on this, perhaps by repeating the study in workplaces, or some similar intervention.

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