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To Frame or Not To Frame: Creating a Metaliteracy Course for Online Ed.D. Students

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Abstract

Purpose

The purpose of this study is to create a course in a learning management system (LMS), Canvas, for online Ed.D. students and determine if the course can improve scores measuring metaliteracy concepts from pretest to posttest. The course assessed knowledge of metaliteracy goals and objectives instead of using the ACRL Framework. This paper reports on the creation of the course, results of the pretest-posttest, a mapping of metaliteracy goals and objectives with the ACRL Framework, and recommendations for including metacognitive practices in library instruction.

Design/methodology/approach

The researcher used a quantitative, quasi-experimental, exploratory design and developed a metaliteracy course in the Canvas LMS using a pretest-posttest design, creating video tutorials as the treatment for each module (five total) using Adobe Spark.

Findings

According to a t-test run in SPSS, there was a significant difference between the metaliteracy pretest and metaliteracy posttest. Using metaliteracy goals and objectives as a method for assessing information literacy knowledge can be useful. Using the ACRL Framework along with metaliteracy goals and objectives can be effective for presenting and assessing information literacy knowledge and skills.

Research limitations/implications

One limitation of this study was the use of one population of online Ed.D. students at one institution. One implication of this study is the need for metaliteracy goals and objectives to be used in connection with the ACRL Framework.

Originality/value

This research adds to the limited knowledge of how metaliteracy goals and objectives can be used to assess information literacy and other literacies using a pretest-posttest format in an online format.

Keywords

Metaliteracy, Information literacy, Metacognition, Online learning, Doctoral students, Learning management systems, Canvas, ACRL Framework, Pretest, Posttest

Introduction

In 2011, Mackey and Jacobson proposed a new paradigm for information literacy and developed the term "metaliteracy" to shift from skills-based information literacy standards to a concept-based metaliteracy framework. Information literacy tutorials, courses, and resources, some designed for online students, have been created using the ACRL Framework for Information Literacy for Higher Education (ACRL Framework). Metaliteracy concepts were used to form the ACRL Framework; however, metaliteracy includes its own set of four goals, with each one having learning objectives developed by Mackey, Jacobson, and their colleagues at SUNY and can be found at metaliteracy.org. In general, there is a lack of research in library literature focusing on information literacy instruction for doctoral students (Madden, 2014). In particular, there is a lack of research in library literature on how metaliteracy goals and objectives have been used as a basis for online information literacy courses. Rather than using the ACRL Framework to assess information literacy knowledge, the researcher used metaliteracy goals and objectives to determine understanding by creating a non-credit course for online Ed.D. students as part of dissertation work.

This paper reports partial results of this study, which revealed a significant difference between pretest and posttest scores. This paper also reports on how the metaliteracy course was developed in Canvas (LMS), a mapping of metaliteracy goals and objectives to the ACRL Framework, the advantages and disadvantages of using metaliteracy goals and objectives, and ways in which librarians can incorporate metacognitive strategies within information literacy instruction.

Literature Review

After the establishment of Colonial colleges such as Harvard, William & Mary, Yale, and Princeton, attendance grew after the Civil War, World War I, and World War II (Clayton, 1968; Salony, 1995). In turn, the libraries of these institutions grew, as did the staff and librarians needed to organize materials and help faculty and students find the materials. Librarianship became an essential profession for academic libraries, forming the Association of College and Reference Libraries (ACRL) in 1938 (now the Association of College and Research Libraries) (ACRL, 2006). As libraries and collections grew, librarians organized books, journals, and other resources, and helped faculty and students find resources to use for research. Bibliographic instruction, the term used by librarians to describe instruction to researchers, focused mainly on librarians helping faculty and students find what they needed for research. When electronic and digital formats and tools became increasingly available in libraries, librarians shifted from the term bibliographic instruction to the term information literacy (Rader, 1990). Bibliographic instruction, librarians as teachers, and information literacy became crucial to academic librarians, and the increase in access to information warranted the need for information literacy instruction (Farber, 1999).

Information literacy courses using the ACRL Information Literacy Competency Standards for Higher Education, now the ACRL Framework, have been developed for face-to-face and online courses. Sharing of these courses in the Canvas Commons, through library websites, or the Peer-Reviewed Instruction Materials Online database (PRIMO), have increased steadily since the information literacy standards were updated to the ACRL Framework in 2016. The ACRL Framework is based on metaliteracy and metacognitive principles, although these words are mentioned sparingly in the Framework document (ACRL, 2016). In previous drafts of

the ACRL Framework, metaliteracy was noticeable as an influence, but the final draft relegated metaliteracy to one paragraph and footnotes (Fulkerson *et. al*, 2017). Metaliteracy has its own set of learning goals and objectives, and while the Framework is designed to help assess information literacy skills and concepts, metaliteracy can also be used to assess these skills and concepts as well (Mackey and Jacobson, n.d.). Fulkerson et al (2017) emphasized that leaving out metaliteracy and metacognitive concepts weakens the document as an assessment tool. Including metaliteracy goals and principles, in addition to the ACRL Framework, can help create a comprehensive understanding of students' information literacy knowledge and skills.

The ACRL Framework moved away from a "prescriptive" set of skills that higher education students needed to master, as communicated in the ACRL Information Literacy Competency Standards for Higher Education, to a framework of concepts and "core ideas" that would help students become lifelong learners (ACRL, 2016a). Table 1 below maps the ACRL Framework to the Metaliteracy goals and objectives as used in the metaliteracy course.

	Metaliteracy Course: Module 1 - Evaluate Information Critically	Metaliteracy Course: Module 2 - Information Ethics	Metaliteracy Course: Module 3 - Information Creation, Sharing, and Collaboration	Metaliteracy Course: Module 4 - Lifelong Learning Research Strategies	Metaliteracy Course: Module 5 - Research Skills Proficiency
Framework					
Authority is Constructed and Contextual 1) Define types of authority 2) Understand different disciplines have different authorities 3) Recognize different formats of authoritative sources	1.1 Recognize the criteria for evaluating authority, relevancy, accuracy, and validity of information sources 1.2 Determine context of an information source by considering purpose and format 1.3 Distinguish between scholarly and non-scholarly sources				
Information Creation as a Process 1) recognize information can be in static or dynamic formats 2) understand the purpose of the format when creating own information 3) understand certain messages information conveys depending on format and delivery			3.1 Understand the various ways of sharing original content 3.3 Describe digital and visual literacy and their importance to metaliterate learning 3.4 Identify digital and media formats and the uses and purposes of each		
Information Has Value 1) give credit to original ideas of others and understand intellectual property is part of legal terminology 2) decide how own information is disseminated, including person information 3) distinguish between copyright, fair use, open access, and public domain information aspects		2.1 Understand the concepts of academic integrity, copyright, and plagiarism 2.2 Differentiate between various forms of attribution 2.3 Identify parts of a citation in APA style 2.4 Recognize elements of APA style in context			
Research as Inquiry 1) formulate research questions based on examining information that conflicts or is lacking in focus 2) use various research methods 3) draw conclusions based on analysis and synthesis of information and assess information for weaknesses 4) seek help when needed				4.2 Determine tasks involved to develop research questions 4.3 Reflect on one's own knowledge and determine ways to increase metacognition skills 4.4 Recognize the process of critical thinking that leads to metaliterate learning	5.1 Describe research methods, including quantitative, qualitative, and mixed methods
Scholarship as Conversation 1) cite the work of others and contribute to the body of scholarship in your discipline 2) seek out many perspectives on a topic 3) critically evaluate contributions of others	1.4 Understand the process of peer review and its purpose in scholarly research		3.2 Consciously participate in social media environments		
Searching as Strategic Exploration 1) match information needs with search strategies and search tools 2) refine research strategies as necessary 3) understand how each research tool functions to use appropriate search terms and organize results				4.1 Know which search strategies are appropriate for the information needs	5.2 Distinguish between primary, secondary, and tertiary sources 5.3 Recognize ACU library's databases, authentication process, and InterLibrary Loan procedures 5.4 Understand how to request physical materials

Table 1. Metaliteracy Goals and Objectives Mapped to ACRL Framework (see Appendix)

The literature is lacking in examples of courses that use metaliteracy goals and objectives, especially online courses that have been developed to assess metaliteracy skills and concepts (Shafer, 2011). In their book, *Metaliteracy in Practice*, Jacobson and Mackey (2016) highlight various library instruction activities and courses using metaliteracy principles, but online components were not the focus of the majority of the examples. Some research exists that incorporates metaliteracy principles into information literacy instruction for online or face-to-face graduate students even if the term "metaliteracy" is not explicitly mentioned (Courtney and Wilhoite-Mathews, 2015; Kumar and Edwards, 2013; O'Clair, 2013; Read and Morasch, 2016; Shaffer, 2011; Witek and Grettano, 2014). Assessing metacognitive strategies is also necessary for students in developing lifelong learning strategies (Catalano, 2017).

Methodology

Participants

Participants for this study were online doctoral students enrolled in the online Ed.D. program at a nonprofit, private, faith-based, four-year master's institution in the southwest. Out of approximately 300 students enrolled at the time of the study, 28 students self-enrolled in the course, but only 19 students completed the course.

Development

This study used an exploratory, quantitative, quasi-experimental, one-group, pretest-posttest design. This design was chosen due to the lack of studies found that assessed metaliteracy concepts or skills and the many research designs in the literature that used a pretest-posttest design to assess information literacy skills (Henrich and Attebury, 2012; Roberts, 2017; Shaffer, 2011). Backward design (Wiggins and McTighe, 2006) was used to develop learning objectives that were then used to create pretest/posttest questions for the course. Using

backward design creates learning objectives and outcomes of what learners should know rather than what instructors think learners should know (Fox and Doherty, 2012). The Metacognitive Strategies for Library Research Skills Scale (MS-LRSS) was used to assess metacognitive strategies related to research developed by Catalano (2017). The treatment between the pretest and posttest were video tutorials produced by the researcher using Adobe Spark. Adobe Spark is a product that is available through the researcher's institutional license. The videos introduced and emphasized metaliteracy and information literacy concepts using images and text and included audio of the text. Adobe Spark videos are recommended to be less than five minutes in length. The longest length of a metaliteracy course video was 4:09 (Research Methods), and the shortest length was 1:24 seconds (Digital and Visual Literacy). Each module included two or three videos. A listing of the videos with each module can be found in the Procedure section.

Procedure

Students enrolled in the online Ed.D. program at the institution, and were not in their first or second course, were invited to self-enroll in the metaliteracy course in the LMS, Canvas. The students proceeded through the course in the following order:

Informed Consent

Metaliteracy pretest (25 questions, five for each module)

Metacognitive Strategies for Library Research Skills Scale (MS-LRSS)

Module 1: Critically Evaluate Information video tutorials (Metaliteracy Goal)

Spark videos (two): Scholarly Resources; Peer Review

Module 2: Information Ethics video tutorials (Metaliteracy Goal)

Spark videos (two): Academic Integrity, Copyright, and Plagiarism; APA Style

Module 3: Information Creation, Sharing, and Collaboration (Metaliteracy Goal)

Spark videos (three): Social Media; Digital and Visual Literacy; Creating Original

Content

Module 4: Lifelong Learning Research Strategies (Metaliteracy Goal)

Spark videos (two): Information Needs; Metacognition

Module 5: Research Skills Proficiency (Added Goal)

Spark videos (three): Types of Sources; Requesting Materials and ILL; Research

Methods

Metaliteracy posttest (same questions as pretest with answers appearing in random order)

Students who completed all the modules of the course, as outlined above, were included in the

study. The first four modules were based on the four goals of metaliteracy. A fifth module was

created to highlight specific library skills not necessarily covered in the metaliteracy goals and

objectives, including requesting materials through Interlibrary loan and specific research

methods studied in the Ed.D. program.

Results/analysis

There was a significant difference between pretest and posttest using a dependent t-test.

Pretest descriptive statistics were $M = 74.95$ and $SD = 9.87$. Posttest descriptive statistics were

$M = 92.42$ and $SD = 6.10$. The $t(18) = -8.90$, $p < .001$, $d = -2.04$ at the $p < .05$ level and $N = 19$.

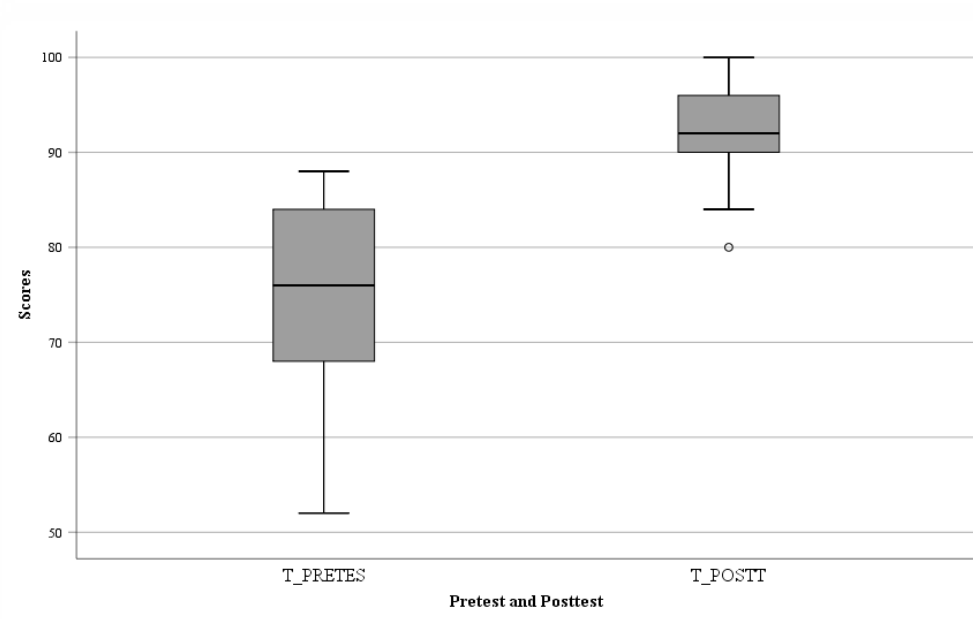A representation of the scores of the pretest and posttest can be found in Figure 1 using a

boxplot.

Figure 1. Metaliteracy pretest and posttest box scores showing one mild outlier for posttest.

Discussion and future directions

Incorporating metaliteracy principles into instruction can be achieved for credit courses, non-credit courses, and one-shot sessions. One way to incorporate metaliteracy principles into instruction is to provide opportunities for students to give feedback, also known as question-posing (Scott, 2016). Another way of incorporating metaliteracy principles is to create self-reflection activities for research strategies, including successes and failures (Ma, Li, and Lang, 2019). Allowing students to evaluate different types of sources from fluid and static environments can help incorporate metaliteracy principles, and can be easily added to a one-shot session focusing on types of sources (Rapchak, 2018). Giving students time for peer review to discuss research strategies or critical evaluation of sources can incorporate metaliteracy principles, but might take more time than is allotted for a one-shot session (Witek and Gretanno, 2014). Discussing with students their responsibility to uphold academic integrity and reminding students it is okay to ask for help are other ways to incorporate metaliteracy principles into

library instruction (Scott, 2016). Including metacognitive strategies in library instruction as presented within metaliteracy or ACRL Framework concepts can be beneficial for all students at any experience or knowledge level.

Pretest-posttest designs are valid ways to assess concepts and skills for online students. However, this course is not a substitute for also offering online students one-on-one instruction, asynchronous or synchronous webinars or tutorials. A combination of a metaliteracy course, asynchronous and synchronous webinars, video tutorials, and librarian office hours for one-on-one instruction give online students the best possible chance of success. The ACRL Standards for Distance Library Services suggest that online students have access to library personnel (ACRL, 2016b). Rader (1990) concluded that the term used by librarians for instruction was not as important as the need for instruction and "strong information literacy programs" (p. 20). A combination of assessing metaliteracy goals and objectives and the ACRL Framework for online students is crucial for lifelong learning and 21st-century skills. Incorporating metacognitive principles in instruction, including library one-shot instruction sessions, asynchronous and synchronous sessions, can help students develop lifelong research competencies. The course was updated based on the findings, and online Ed.D. students are now required to complete one module as part of a course in the program. Future iterations include a course specifically for online DNP students and a general course for other online graduate and online undergraduate students. Other plans include updating the modules to reflect the metaliteracy goals and objectives revisions from 2018 and creating an expanded course to allow students to practice metaliteracy concepts and skills (metaliteracy.org).

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Appendix	Metaliteracy Course: Module 1 - Evaluate Information Critically	Metaliteracy Course: Module 2 - Information Ethics	Metaliteracy Course: Module 3 - Information Creation, Sharing, and Collaboration	Metaliteracy Course: Module 4 - Lifelong Learning Research Strategies	Metaliteracy Course: Module 5 - Research Skills Proficiency
Framework					
Authority is Constructed and Contextual	1.1 Recognize the criteria for evaluating authority, relevancy, accuracy, and validity of information sources 1.2 Determine context of an information source by considering purpose and format 1.3 Distinguish between scholarly and non-scholarly sources				
Information Creation as a Process			3.1 Understand the various ways of sharing original content 3.3 Describe digital and visual literacy and their importance to metaliterate learning 3.4 Identify digital and media formats and the uses and purposes of each		
Information Has Value		2.1 Understand the concepts of academic integrity, copyright, and plagiarism 2.2 Differentiate between various forms of attribution	3.2 Consciously participate in social media environments		
Research as Inquiry				4.2 Determine tasks involved to develop research questions 4.3 Reflect on one's own knowledge and determine ways to increase metacognition skills 4.4 Recognize the process of critical thinking that leads to metaliterate learning	5.1 Describe research methods, including quantitative, qualitative, and mixed methods
Scholarship as Conversation	1.4 Understand the process of peer review and its purpose in scholarly research	2.3 Identify parts of a citation in APA style 2.4 Recognize elements of APA style in context			
Searching as Strategic Exploration				4.1 Know which search strategies are appropriate for the information needs	5.2 Distinguish between primary, secondary, and tertiary sources 5.3 Recognize ACU library's databases, authentication process, and InterLibrary Loan procedures 5.4 Understand how to request physical materials