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Exploring the Impact of Feedback on Learning Transfer in the Liminal Space for Information Literacy

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Exploring the Impact of Feedback on Learning Transfer in the Liminal Space for
Information Literacy

By
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A Dissertation Submitted to the
Gardner-Webb University School of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

Gardner-Webb University
2018

Approval Page

This dissertation was submitted by Natalie Edwards Bishop under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

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Acknowledgements

"Be strong and courageous. Do not be afraid; do not be discouraged, for the Lord your God will be with you wherever you go" (Joshua, 1:9). The doctoral journey has taken me places I never expected to go, often including moments of fear balanced by moments of enrichment. God gave me the gift of many friends and supporters along the way and to you all, I offer my thanks.

To my husband Stephen – you encouraged me to take a chance on a dream, believing in me when I did not believe in myself. Thank you for reading all of my drafts, even after you begged me not to write about liminal space and learning transfer, and I did it anyway. Thank you for keeping my Pleasant Hill flock alive in my absence – especially Quigley, whose hugs were crucial on my doubtful days. Without your support, this would not have happened.

To my parents – thank you for teaching me to be persistent, to work hard, and to never take any wooden nickels. I have leaned on these life lessons throughout this process, and the outcome has been successful. Maybe now I will heed your advice to get to sleep earlier. Mom, you always answered my calls for help and kept my creative projects from falling through the cracks. Dad, you kept me in your prayers and provided a good example for how Edwards' can come out on top of the heap.

To Dr. Emily Robertson – my critical friend and fellow dissertation pilgrim. I am endlessly thankful we walked this journey together. While I am proud of our professional growth at Gardner-Webb, I treasure our personal growth from being friendly colleagues to now being closest friends. #leavenowomanbehind #dissertationstrong

To Dr. Jennifer Putnam – Yay! The impact of your upbeat encouragement, honest feedback, and willingness to answer ALL THE QUESTIONS cannot be

underestimated. As I step on the other side of my threshold, I recognize that you were a significant catalyst in the liminal space, and I am thankful that you were in that role. We should write an article on that.

To my dissertation committee – Dr. Sydney Brown and Dr. Jeff Rogers, thank you for all of your thoughtful feedback and input. You were chosen because I knew you would throw this dissertation through the wringer and it would come out better for it on the other side.

To my cohort-mates – Angela, Nicole, Terri, Dawn, Alecia, Sam, and Stephanie, throughout this process I have been continuously uplifted by your support and friendship. Family lunch at the caf holds a dear place in my heart. I celebrate each of your achievements with joy – best wishes!

Last, but not least, to my colleagues at the Dover Library – I am thankful for the participation, support, and genuine interest you have shown in this endeavor. Your willingness to listen to ideas, discuss possibilities, and commitment to the continuous improvement of our shared practice is deeply appreciated and makes me excited about the future. Onward ho!

Abstract

Exploring the Impact of Feedback on Learning Transfer in the Liminal Space for Information Literacy. Bishop, Natalie Edwards, 2018: Dissertation, Gardner-Webb University, Feedback/Learning Transfer/Liminal Space/Threshold Concepts/Information Literacy/Adult Learning

Mastering new knowledge is a transformative process, but what happens between initial confrontation with new knowledge and the moment it is mastered? This qualitative case study investigated perceptions on how feedback loops influenced student growth and learning transfer in the liminal space. Myer and Land (2005) described the liminal space as a stuck place where learners are wrestling with their conceptual understanding of knowledge that is troublesome.

Students were adult undergraduates in an online information literacy course. Librarians teaching the course were early adopters of ACRL's *The Framework for Information Literacy in Higher Education* (the Framework) and participated in on-site professional development for effective feedback practices and Framework implementation. The Framework, based on Meyer and Land's threshold concept theory, represents a pedagogical shift in how librarians teach and assess information literacy. Previous practice focused on skills-based standards; the Framework focuses on development students' conceptual understanding of information creation, acquisition, and use.

Findings of the study indicated that instructors and students have divergent perceptions regarding student entry points into the liminal space. Identifying liminal spaces can influence which feedback strategies are used to support learning transfer. Findings further indicated that instructors are also within a liminal space with Framework implementation as the pedagogy adoption is still new for Library Science.

Conclusions identified effective feedback strategies to support learning transfer for students in the liminal space. The study offers a pathway for qualitative assessment of the Framework and suggests support strategies for librarians as learners as they continue to teach and assess the Framework.

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Chapter 1: Introduction

Introduction

Transferable learning is often derived from messy, unstructured, problem-solving encounters (Meyer & Land, 2005). These messy encounters pose as stuck places for students in the learning process; a liminal space in which the student confronts and wrestles with troublesome, or conceptually difficult, knowledge (Meyer & Land, 2006). Instructors are challenged with facilitating these learning experiences in the online learning environment in higher education. The challenge is further extended with adult learners, whose demand for online courses may be in contrast to their ability to integrate technology and information literacy (Rapchak, Lewis, Mtyka, & Balmart, 2015). With the recent boom in online education, the National Center for Education Statistics estimated an increase from 28 to 33% in adult learners over the age of 25 between 2006 and 2016 (U.S. Department of Education, National Center for Education Statistics, 2018). With the increasing transition from the traditional classroom to the online environment, the question arises: How do instructors in higher education design curriculum and assessments to support and measure learning transfer for this growing student population? This study explored the impact formative assessment and the feedback loop have on adult learner growth and learning transfer in the liminal space.

Statement of Problem

Information literacy instruction is a significant portion of the outreach work conducted by academic libraries in higher education institutions. The importance of information literacy in the framework of critical thinking, learning outcomes, and assessment in higher education is evidenced by the Southern Association on Colleges and Schools Commission on Colleges (SACS-COC, 2017) comprehensive standard 11.3:

"The institution provides (a) student and faculty access and user privileges to its library services and (b) access to regular and timely instruction in the use of the library and other learning/information resources" (p. 26). Providing information literacy instruction to distance and adult students has presented a continuous challenge for librarians, and the result is a limited number of studies that focus on examining information literacy assessment for this population of students (Catalano, 2015; Rapchak & Behary, 2013; Rapchak et al., 2015).

With the adoption of the new Association of College and Research Libraries (ACRL, 2015a) *Framework for Information Literacy in Higher Education* (the Framework) in 2016, an additional layer of complexity was added to the landscape of information literacy acquisition. ACRL sets the professional and information literacy standards practiced by librarians in higher education institutions. The Framework represents a pedagogical departure from the 2000 *Information Literacy Competency Standards for Higher Education* (the Standards), in which the primary focus of the competency standards was on the mechanics and skills of research; however, the Framework, rooted in Meyer and Land's threshold concept theory (ACRL, 2015a), focuses on critical thinking through the applied conceptual understanding of the research process. Current literature has offered limited study on teaching threshold concepts or assessing adult students' ability to transfer concepts.

Threshold concept theory was developed by educators Jan Meyer and Ray Land as part of the Enhancing Teaching and Learning in Undergraduate Courses research project (Hofer, Townsend, & Brunetti, 2012; Meyer & Land, 2003). The project expanded on David Perkin's theory of troublesome knowledge and explored how ways of thinking could be practiced within academic disciplines (Meyer & Land, 2003). By

definition, threshold concepts are troublesome, challenge prior knowledge (Meyer & Land, 2005; Perkins, 1999), and are transformative or irreversible (Meyer & Land, 2005).

Transfer, the degree to which learning is applied from one context to another, "occurs when prior-learned knowledge and skills affect the way in which new knowledge and skills are learned and performed" (Leberman, McDonald, & Doyle, 2006, p. 2). As students apply the process of transfer, they enter a liminal space where they begin to wrestle with understanding a concept or skill prior to crossing the threshold of concept mastery (Entwistle, 2008; Meyer & Land, 2005). While students exist in this liminal space oscillating between stages of growth, stagnation, and mimicry of concept mastery, instructors can provide support through formative assessment (Canter, 2016; Entwistle, 2008; Felten, 2016; McCartney et al., 2009; Meyer & Land, 2005; Savin-Baden, McFarland, Savin-Baden, 2008). Formative assessment allows repeated practice of a learning concept supported by guiding feedback. Through the lens of threshold concepts, this study explores how the process of formative assessment and feedback impacts adult student growth in the liminal space and their ability to transfer learning.

A review of the literature reveals the challenge instructors face in designing transferable learning experiences in the face-to-face classroom environment (Foley & Kaiser, 2013; Saloman & Perkins, 1989). This challenge is further extended in the online environment where learning is largely asynchronous. Ainsworth (2010) noted that engaged learning experiences challenge students in creating their own connections between understanding and applying knowledge. Instructional strategies that provide opportunities to actively learn by applying concepts and skills to new situations support the likelihood of transfer.

Learning for understanding is defined by Earl (2013) as demonstrating that a

concept has been understood through application rather than recitation, with learners increasing in competence and confidence as they develop more critical processes that allow them to problem solve in new settings. Online instructors often struggle in creating these experiences as they work within the "direct instruction" framework of applying a face-to-face instruction model to an online environment (Fulgham & Shaughnessy, 2010, p. 20). A benefit to the online environment in context to teaching threshold concepts, however, is the agent relativity of threshold entry (Baillie, Bowden, & Meyer, 2013; Land, Rattray, & Vivian, 2014). Online education offers the opportunity to differentiate instruction through direct feedback portals, thus accommodating varying entry points into the threshold. The unknown factor is assessing degrees of growth and occurrences of transfer once students have entered the liminal space.

Purpose of the Study

Using a qualitative case study approach, this study investigates the extent to which formative feedback impacts the liminal growth of adult undergraduates enrolled in an asynchronous, online information literacy course. The breadth of conceptual knowledge in the discipline of information literacy cannot be successfully covered in a single study; thus, the focus of this study is on instructor and student perceptions of how the feedback-loop impacts growth and transfer of learning in the liminal space. Data were collected from a series of mid-stake assessments in which students were asked to combine and apply multiple information literacy concepts. The researcher defined mid-stake assessments as assessments still rooted in formative design that carry more weight and require the application of multiple concepts, as opposed to low-stakes assessment which focuses on the practice of a single concept.

Previous studies. Rapchak et al. (2015) assessed potential gaps in student

understanding post-information literacy instruction and concluded that adult undergraduate students demonstrated weaknesses in their abilities to evaluate information sources. This study expanded on Rapchak et al.'s by exploring how feedback provided through scaffolded, "formative assessment AS learning" (Earl, 2013, p. 28) impacted student perceptions of their growth and ability to transfer learning in the liminal space.

Furthermore, a quantitative study conducted by Catalano (2015) measured the degree to which situated learning increased student abilities to achieve far transfer, or the ability to apply previously acquired knowledge in new learning situations (Foley & Kaiser, 2013), in an online information literacy course. Brown, Roediger, and McDaniel (2014) and Perkins (2008) noted that students must understand and elaborate on the process of transferring knowledge in order to ensure transfer to future learning situations. Instructors help facilitate student negotiation of the transfer process by providing "cognitive hooks" to aid the learner in recognizing relevant applications for knowledge more easily (Catalano, 2015; Perkins, 2008). This study also qualitatively expands on Catalano's work by studying student and instructor perceptions of threshold entry points, influence of feedback, and opportunities for transfer in an online information literacy course.

A study by Canter (2016) explored how students responded to experiences within the liminal space. Canter's study, which used adult learners in a postbaccalaureate program, explored student feelings and responses to encountering stuckness in their course of study (Canter, 2016). Findings of the study indicated that stuckness is a common experience to students in higher education with students experiencing a wide-range of responses to stuck places. Canter (2016) suggests that instructors should embrace their role as an active participant in the liminal growth process by developing a

more holistic approach to understanding student stuckness.

A study conducted by Scott (2017) was one of the first to investigate student voice as it pertained to threshold concepts in information literacy instruction. Scott's study, which used traditional, honors undergraduate students, gathered student reflections on the transformative, iterative, and troublesome aspects of threshold concepts as they pertained to the Framework (Scott, 2017). Scott's study focused on incorporating student voice to identify stuck places as entry points into conceptual gateways and identify how feedback influenced growth within the liminal space. While previous research on student voice pertaining to threshold concepts has focused on undergraduate and graduate learners, Scott's study is unique in adding the adult undergraduate voice to the conversation (Felten, 2016; Scott, 2017).

Background

This study focused on adult learners enrolled in the online information literacy course, LIB 301, in a Degree Completion Program (DCP) at a private, doctoral university. Students observed in this study are classified as *at risk* as defined by Radford, Cominole, and Skomsvold (2015). Factors determining at risk classification are technological illiteracy, gap in higher education experience, delayed enrollment, regular full- or part-time employment, and dependents under the care of the student. These participants are considered nontraditional students, defined in the literature as students who meet more than one of the following criteria: employed, financially independent, responsible for dependents, and enrolled as a full- or part-time student (Choy, 2002). It should be noted that there are several overlaps in the criteria for classifying both at-risk and nontraditional students. Prior to this study, a program evaluation of the LIB 301 course was conducted. Relevant results from the evaluation are detailed in the next

sections.

Description of LIB 301. LIB 301 is an online information literacy course required for all first-year DCP students. DCP was designed to accommodate the needs of nontraditional adult learners seeking a baccalaureate degree from a choice of 12 majors. LIB 301 was developed to provide equitable information literacy instruction to DCP online students as traditional undergraduates received face to face. The curriculum and course are designed by the instruction librarian liaison to DCP and is taught by faculty librarians at the institution using the Blackboard learning management system. Students participate in a series of seven learning modules, each designed with learning outcomes and assignments aligned to one or multiple frames from ACRL's (2015a) *Information Literacy Framework for Higher Education* (Appendix A).

As students progress through the course, content, skills, and exercises from the modules are applied to Practice Segment (PS) assessments. PSs are a series of problem-based learning assessments embedded throughout LIB 301. The purpose of the PS assessments is to introduce students to the metacognitive process of using "prior knowledge to plan a strategy for approaching a learning task, take necessary steps to problem solve, reflect on and evaluate results, and modify one's approach as needed" (U.S. Department of Education, Office of Vocational and Adult Education, 2011, p. 32).

Development of PS assessments. To evaluate a student's ability to critically apply the concepts and skills learned through the course modules, students must complete an annotated bibliography meeting specific source type and evaluation requirements. By completing this project, students are demonstrating their ability to identify, evaluate, and analyze the characteristics, qualities, and differences between particular source types and how they can support research. Students evaluate sources by focusing on the timeliness,

reliability, relevance, audience, and purpose (TRAP) of a source in relation to student research inquiry.

Prior to the program evaluation, instructors from this university reported that students consistently struggled with the annotated bibliography. Trends in student feedback revealed that many students were unfamiliar with annotated bibliographies and felt overwhelmed by or did not understand the assignment. Recognizing this finding as a significant barrier to learning, a series of smaller PS assessments were developed to scaffold students through the annotated bibliography process.

PS assessments were designed using a formative structure in order to facilitate student movement through thresholds of understanding with instructive support. For example, the PS3 assessment focuses on locating, evaluating, and citing a scholarly article. Students must demonstrate the ability to identify a scholarly article, explain why that article is scholarly, evaluate the content of the article in context to their research inquiry, and provide an accurate citation. While implementing the PS assessments initially helped students understand how to create an annotated bibliography, students continued to struggle with correctly identifying and evaluating sources. Instructors agreed that an inability to correctly identify and evaluate sources was a significant priority concern, with students failing to apply the far transfer of knowledge. In response, the course and curriculum designer applied Stufflebeam's (2007) CIPP (Context, Input, Process, Product) program evaluation model to identify disconnects in the course and create modifications to better support student learning.

CIPP program evaluation. The program evaluation of the PS assessments, conducted using the decision-oriented CIPP evaluation model developed by Stufflebeam (2007), determined the strengths, weaknesses, and potential areas of improvement in the

PS assessment structure and curriculum design. The CIPP model evaluates programs in four stages: context to needs, inputs, processes, and products. The cyclical design of this model fosters continual improvement through assessment of outcomes in context to stakeholder needs, environment, resources, and overall program impact. Evaluators of the PS assessments engaged in a multi-semester evaluation cycle focusing on improving students' critical evaluation of sources, modifying the feedback process, and adding reflective writing to reinforce transfer.

The CIPP model's cyclical design incorporates both formative and summative assessment and shares commonalities with Wiggins and McTighe's (2005) Understanding by Design (UbD) model which maps curriculum backwards from intended learning outcomes. The CIPP model, like the UbD model, emphasizes identifying and evaluating needs and working backwards through the evaluation of outcomes and goals.

Conducting a CIPP evaluation revealed that timing, instructor training, and reflective writing were critical components to a successful feedback loop in LIB 301 (Appendix B). Specifically, results indicated PS assessments should be scaffolded far enough apart to allow instructors to provide feedback to support repeated practice. It also revealed that instructors needed additional support in providing feedback that would help students gain a growth mindset. Last, reflective journaling was needed to provide students with an opportunity to elaborate on their thinking when evaluating sources and applying instructor feedback.

Research Questions

The researcher used the findings of the CIPP evaluation to influence the research questions of this study. It is important to investigate the perceptions students and instructors hold regarding the influence of feedback on student entry into the liminal

space and their ability to transfer learning. As research has demonstrated (Brown et al., 2014), student perceptions of growth and transfer are crucial to their ability to master a concept and apply learning to disparate situations; therefore, the following research questions were developed in order to more fully examine the role feedback plays in regard to adult learner and instructor perceptions of information literacy growth and transfer of learning at the site under study.

1. What types of feedback occur in an online information literacy course for adult undergraduate students?

2. What perceptions do adult undergraduate students hold regarding how feedback influences their growth in the liminal space?

3. How do instructors describe their feedback style and beliefs regarding the role of feedback on the ability to transfer learning and growth in the liminal space?

Significance of the Study

The significance of this study has implications for how information literacy education for adult learners is assessed. The body of literature on how learning transfer and threshold concept mastery can be measured in information literacy instruction is limited. National accreditation bodies for higher education, such as SACS-COC, are requiring libraries to provide evidence of information literacy program effectiveness. This study provides a methodological pathway that libraries could follow for collecting and analyzing qualitative data. A focus of this study is on how formative feedback contributes to the liminal growth in information literacy understanding and transferability of learning. Meyer and Land's (2003, 2005) research shows that threshold concept mastery, or even entry into the threshold or liminal space, cannot be achieved in a single learning experience. Instead, students need opportunities for repeated practice and

exposure to a learning concept which can be facilitated in an information literacy course. This study explores the need for higher education institutions to support libraries in offering for-credit information literacy instruction for distance education and/or at-risk students.

Definitions

 Andragogy. The facilitation of adult learning through educational strategies that incorporate life experience, support self-directed learning, and immediate application of knowledge (Knowles, 1978).

 Formative assessment. An assessment designed to improve student understanding of a concept or skill by allowing repeated, practiced attempts at an assessment supported by targeted instructor feedback. Typically, formative assessments are ungraded; for the purpose of this study, formative assessments are graded exercises conducted in an asynchronous, online setting (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010).

 Information literacy. The ACRL and American Library Association (ALA) define information literacy as a person's ability to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (ALA Presidential Committee, 1989, para. 3).

 Liminal space. A transformative stage in the learning process in which the learner begins to reframe or experience a shift in their understanding of a subject (Land et al., 2014).

 Learning transfer. The process of the effective and continued application of learned skills and concepts to new and/or different experiences from the context of the original learning experience (Foley & Kaiser, 2013).

Stuckness. Anecdotally used to describe the state of being in the stuck place, or liminal space, where students wrestle with troublesome knowledge (Canter, 2016; Savin-Baden et al., 2008). Meyer and Land's (2005) definition of liminality as a place where students get stuck in their learning informed the development of the term stuckness.

Threshold concept. Foundational concepts that once understood by the learner are irreversible and transformative in how the learner understands a discipline of study. Threshold concepts are thought of as liminal spaces, or portals of understanding, through which a student must pass in order to achieve mastery in disciplinary understanding (Baillie et al., 2013).

Scope of the Study

The scope of this study was limited to adult undergraduate students enrolled in a for-credit information literacy course in a DCP at a private, doctoral university. The focus of the study was to explore instructor and student perceptions of how different types of feedback influence growth and learning transfer in the liminal space. The ability to transfer learning is comparative to student growth within the liminal space as they develop conceptual understandings that lead them towards concept mastery.

Qualitative data were collected from student reflection journals, assignment feedback samples, and an online, open-ended questionnaire. Reflection journal posts provided data on student perceptions on the impact of instructor feedback. An online, open-ended questionnaire was taken by instructors of the course and provided data on instructor perceptions of how feedback impacts student learning. Instructor feedback samples from PS assignment submissions were collected to provide evidence of the type of feedback provided to students. A document analysis was conducted on all collected data and was triangulated to demonstrate relationships between occurrences of feedback

and perceptions of feedback as they relate to the processes of liminal growth and transfer.

Delimitations

The researcher implemented four delimitations in this case study. Data were collected from students who completed all PS assignments and reflection journals. By delimiting to students who completed these assessments, the researcher was able to align feedback samples collected from the PS with student responses to the reflection journal prompts. Data were collected from sections of the course taught by instructors who elected to participate in the study for the fall 2017 semester. To ensure reliability in instructor responses in the data collection process, the researcher used voluntary participants. As a case study is an in-depth analysis of a selected iteration of an event, the researcher chose to delimit the study to the fall 2017 academic semester. Instructors selected to participate in the study taught the 16-week version of the course. The researcher chose this delimitation as the 16-week version of the course represents the most typical iteration of the course.

Limitations

A limitation of this study is the researcher's dual role as an insider researcher and as an instructor and the curriculum designer of the course. The researcher has exercised reflexivity to describe these roles and addressed steps taken to address the reliability and validity within this study. These steps are discussed in detail in Chapter 3.

Organization of the Study

This case study is organized into five chapters. Chapter 1 introduces the problem under study, the theoretical framework through which data were analyzed, the research questions driving the study, and limitations of the study. Chapter 2 focuses on literature related to the development of information literacy, threshold concepts, the feedback loop,

and adult learning. Chapter 3 addresses the methodology of the study and procedures for

data collection and analysis. Chapter 4 analyzes, triangulates, and draws conclusions

from collected data. Chapter 5 reflects on the application of the research study on

curriculum development and investigates potential pathways for extending the research

further.

Chapter 2: Literature Review

Adult undergraduate students struggle with the acquisition of information literacy (Rapchak et al., 2015). Although the teaching and learning of information literacy as a discipline has been reframed by the theoretical underpinnings of threshold concepts, the study of how adults are acquiring and transferring this knowledge has remained limited. The purpose of this study was to examine the impact formative feedback in course design has in supporting adult learners participating in an online information literacy course. This chapter examines the literature related to the history of information literacy, threshold concepts, transfer of learning, the nature of adult learning, and the formative feedback assessment process.

Information Literacy

Information literacy is defined by the ALA as a set of abilities pertaining to the creation, acquisition, evaluation, and ethical use of information and information sources (ACRL, 2000; 2015a). The term information literacy was first introduced in 1974 by Paul Zurkowski, president of the American Information Industry Society, relating to students entering the field of information science without the ability to locate and use information effectively (Kapitzke, 2003). As professional organizations took note of decreased skills among early career professionals, the burden of teaching information literacy fell upon higher education institutions (Breivik, 2005). In the late 1980s, Patricia Breivik stated that information literacy skills were essential to lifelong learning – a key mission for libraries.

Librarianship at this time was undergoing a major evolution with the advent of multimedia technology and the Internet. Up to this point, a librarian's institutional role was considered a fact finder (Cooke, 2010; Kapitzke, 2003). As technology altered the

format and interface of information sources, librarians recognized alarming trends in how

patrons accessed information. Breivik, in her 2005 expository article reflecting on the

evolution of information literacy in Library Science, noted that 21st century students

demonstrated increased satisfaction with whatever information a quick search could

provide, regardless of whether or not that information source best met their needs.

Across the profession, librarians were slow to embrace the role of information literacy

advocate; however, the concept had taken root among librarians active in professional

organizations such as the ALA and ACRL (Marcum, 2002).

The Standards. In 1987, ALA President Margaret Chisholm appointed ALA's

first Presidential Committee on Information Literacy. The committee was charged with

defining information literacy, designing a model of information literacy, and determining

implications for continuing education for library professionals (ALA Presidential

Committee, 1989). A result of the report was the formation of the National Forum on

Information Literacy, which by 1998, determined that a set of teacher and librarian

education and performance expectations related to information literacy should be

established. In January 2000, the Standards were formally adopted by the ACRL Board

of Directors.

By the early 2000s, the Standards had gained traction within librarianship.

Librarians, in a significant shift from the reluctance seen throughout the 1980s and early

1990s, fully embraced the role of information literacy professional, viewing information

literacy as a crucial mission of the discipline (Veach, 2012). Veach (2012) attributed this

shift to a realization that the Internet had blurred the lines between how information

sources are formatted and accessed. In this new age of access where the Internet has

exposed users to an overabundance of information, there is greater pressure on librarians

to prove their worth. Arguably, the role of the librarian in this Googlized environment has not changed, the responsibility for facilitating access to information still rests upon the shoulders of the profession (Cahill, 2009). Librarians have transitioned from the gatekeeper of information to educating constituents on how to successfully navigate information systems independently.

The Standards, a set of five information literacy competencies supported by 22 performance indicators, represent a shift from information acquisition to include the concept of source evaluation (ACLR, 2000; Johnston & Webber, 2003). The purpose of the Standards was to foster lifelong learning in students by challenging their critical thinking in how they acquire and engage with information (ACLR, 2000). Performance indicators represent a range of higher and lower order thinking skills based on Bloom's Revised Taxonomy, allowing students to demonstrate growth within the bounds of the Standards (ACLR, 2000). While the Standards represent a significant paradigm shift in how libraries and librarians function within the educational community, they received criticism for their mechanistic, "tick the box" skills-based approach to information literacy (Johnston & Webber, 2003). Marcum (2002) criticized the Standards for ignoring the iterative nature of information literacy acquisition, stating that the implementation model for the Standards assumes mastery through completed progression of understanding which is contradictory to the Standards iterative, constructivist roots.

By their definition, the five competency standards describe conceptual learning; however, they are underpinned by 22 skills-based performance standards. Mastering or completing a skill does not necessarily equate to a conceptual understanding of a standard. If libraries rely on the performance standards as a measurement for competency standard mastery, assessment of the Standards is skewed. Johnston and

Webber (2003), like Marcum (2002), challenge the assumption that information literacy is mastered through skills completion. This practice precludes longitudinal assessment of student learning on the individual or program level (Johnston & Webber, 2003). Advocates of information literacy emphasize the importance of student-centered instruction that takes place at the point of need. Despite this accepted knowledge, the practice of library instruction is often limited to the context of ill-timed, isolated or one-shot instruction events. Breivik (2005) posited the enduring acceptance of the one-shot model to classroom faculty's assumption that students have already acquired information literacy skills in their prior educational experiences. The continued practice of the one-shot model leaves students stuck in a cycle of surface learning measured with low-level assessments. The juxtaposition between theory and practice is that it is difficult to measure or assess standard mastery, as assessment opportunities are mostly rote and short term.

A solution to the one-shot model has been to embed librarians within disciplinary studies, allowing for integrated, experiential teaching and assessment of information literacy skills. Embedded librarianship "is an innovation that moves the librarians out of the libraries…and emphasizes the importance of forming a strong working relationship between the librarian and a group of people who need the librarian's expertise" (Shumaker, 2012, p. 4). The practice of embedding librarians requires a significant level of collaboration between teaching faculty and librarians, which can be time consuming beyond what is manageable for both collaborative partners. Many faculty and librarians have implemented a hybrid model of embedding by planning several scaffolded instruction sessions that are co-taught, drawing on the unique skill set of both the faculty and librarian. An alternate model is offering a for-credit information literacy course.

Both the embedded and for-credit model affords librarians and faculty with more robust opportunities to assess student critical thinking in their application of information literacy skills. Despite the implementation of other instruction models, librarians have been challenged with how to demonstrate standard mastery in a skills-based curriculum and assessment environment (Pinkley & Hoffmann, 2017).

Higher education is an assessment-driven environment, largely attributed to the demands of accrediting bodies. The demand for assessment data has placed librarians at a distinct disadvantage as many are leaving master's programs of Library and Information Science (LIS) without any education or experience in the assessment of student learning (Askew & Theodore-Shusta, 2013). While very little literature exists on assessment education, "what is available illustrates a notable dissonance between LIS educators and library practitioners' views on the importance of integrating assessment (and research methods) more fully into LIS program curricula" (Askew & Theodore-Shusta, 2013, p. 5). This gap in LIS education has led to an increase in the number of library professionals who are pursuing additional degrees in Instructional and curriculum design rather than a subject matter expertise (Johnston & Webber, 2003). These degree programs provide librarians with both a practical and pedagogical foundation for assessing information literacy learning.

The Framework. After a decade of Standards implementation, librarians recognized the fatal flaw in an information literacy initiative so heavily grounded in teaching skills without addressing the deeper concepts of learning. In the same way, librarians left behind the identity of information gatekeeper to become instructors of research skills; librarians are on the cusp of another significant shift as the profession seeks to unlock critical understanding of information seeking in their constituents. As

part of the 2011 5-year Standards review, ACRL formed a taskforce to heavily revise the Standards. The taskforce, recognizing the altered landscape of higher education, teaching, and the new role of students as information creators, lobbied to move beyond a revision of the Standards in favor of creating a new set of information literacy guidelines (Berkman, 2016). The focus turned towards simplifying information literacy standards for ease of understanding, stripping away library-centric jargon, and including affective learning outcomes, metaliteracy, and focusing on conceptual understandings of information that recognize modern issues of source formatting and the needs of the 21st century learner (ACRL, 2015b).

In the process of revising the Standards, the taskforce chose to ground newly developed or modified standards in established learning theories. The Standards, while loosely based on constructivist concepts, were developed largely without any theoretical underpinnings (O'Connor, 2009). The revised standards, the Framework, are a series of conceptual understandings grounded in two complimentary educational theories: Wiggins and McTighe's UbD and Meyer and Land's Threshold Concepts (ACRL, 2015a). Both theories and their role in framework development are addressed later in this chapter.

Individual standards, or frames, within the Framework were developed through the work of an ongoing Delphi Study in which qualitative data are anonymously collected from a small group of experts (Townsend, Hofer, Hanick, & Brunetti, 2016). The mission of the Delphi Study is to establish the theoretical underpinnings of the framework, address the usefulness of threshold concepts in information literacy, and articulate the threshold concepts in information literacy (Townsend et al., 2016).

The Framework differs from the Standards in its holistic approach to information literacy, a departure from the check-the-box model. Information literacy has been

redefined as a "set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning" (ACRL, 2015a, para. 6). With the elimination of the term "skills," the framework clearly articulates that the focus of information literacy instruction is understanding the conceptual nature of information sources rather than how to function within information aggregators. The Framework, formally adopted by ACRL in January 2016, is called such because it is a series of interconnected concepts with flexible options for implementation, lacking the prescriptive nature of the Standards (ACRL, 2015a; Foasberg, 2015).

The Frames. The Framework consists of six Frames, or threshold concepts, of information literacy. The six Frames of the Framework (ACRL, 2015a) are

1. Scholarship as Conversation.

2. Research as Inquiry.

3. Authority is Constructed and Contextual.

4. Information Creation as a Process.

5. Searching as Strategic Exploration.

6. Information has Value.

A threshold concept, as defined by Meyer and Land (2003), is a "portal, opening up a new and previously inaccessible way of thinking about something. It represents a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress" (p. 1). In the context of the Framework, the six Frames represent portals that transform how students view and interpret information, "enabling students to have a true understanding of the information landscape that extends beyond

the structure and jargon of a particular time and place" (Bravender, McClure, & Schaub, 2015, p. 3). Each Frame is supported by a series of knowledge practices and dispositions meant to provide potential pathways for how concept mastery can be achieved. Knowledge practices are the abilities learners might develop in mastering the threshold concept, while dispositions are "habits of mind" that learners perform in order to develop routine knowledge practices (ACRL, 2015a; Berkman, 2016; Burkhardt, 2016).

Shifting pedagogy. The shift from the Standards to the Framework challenges librarians' pedagogical approach to Instructional design. As stated previously, librarians receive little to no formal education or training in Instructional design, resulting in librarians relying largely on skills-based Instructional practices that do not support conceptual understanding (Berkman, 2016; Bravender et al., 2015). In an effort to address the pedagogical gap left in the wake of the transition to the Framework, many librarians have attempted to map a pathway from the Standards to the Framework (Foasberg, 2015) – largely ignoring the theoretical disconnect between the two documents. The result is a slight retooling of existing Instructional practices, essentially teaching the Standards under the new label of the Framework. This practice is contrary to the intent of the Framework, as the taskforce clearly stated that the Standards were beyond revision – thus the creation of an entirely new document (Foasberg, 2015). Since the adoption of the Framework, ACRL has published two instruction-driven texts aligned with the Framework standards. These texts (Bravender et al., 2015; Burkhardt, 2016) are librarian produced and offer a variety of pathways for understanding both the theoretical and practical applications of the Framework.

The Framework carries significant implications for the future of information literacy instruction as it represents a theoretical shift in pedagogy and understanding of

information. It has been argued that the prescriptive nature of the Standards contributed

to the modern decontextualization of information, allowing people to forget that

information cannot stand alone – it is always produced within a social context (Beilin,

2015; Foasberg, 2015; Pawley, 2003). The Framework seeks to correct this shortfall by

contextualizing information, pushing students to recognize that information is made in

different ways and circumstances which has bearing on how that information is perceived

and used (Foasberg, 2015; Seeber, 2015). This shift in focus from information access to

information context has turned the notion of authority on its head. It challenges long-

held beliefs that praise scholarly research and publication above alternative information

sources (Seeber, 2015). Librarians and faculty, as a result, are pushed into an

uncomfortable place where they either excitedly or reluctantly are faced with reframing

their own construct of information authority (Seeber, 2015). A unique feature of the

Framework is that it pushes students beyond the role of information consumer,

encouraging students to creatively recognize their own role in the process of information

creation and voice in scholarly conversation (Fister, 2015; Foasberg, 2015). Foasberg

(2015) noted that the Standards treats information as a commodity, while the Framework

approaches information as a social community in which the student has a participatory

seat at the metaphorical table.

As Instructional practices are reevaluated in light of the Framework, pressing

challenges, criticism, and support have risen to the forefront of Framework

implementation. While offering expansive creative freedom in implementation, the

Frames are not inherently self-explanatory – "they are theoretical in nature and they don't

offer much to the instructor" (Bravender et al., 2015, p. 3). While each Frame is

supported by knowledge practices and dispositions, they are only potential pathways for

mastery. Beilin (2015) and Burkhardt (2016) suggested that these pathways are more characteristic of the discipline of library science, describing what a library professional is able to demonstrate without detailing the process they took to get there. Librarians are increasingly aware of the time and resource burden generated by creating new Instructional pathways to guide students through these thresholds of understanding (Burkhardt, 2016; Cowan & Eva, 2016). Current literature is ambiguous on assessing threshold growth and mastery. It is clear, however, that these thresholds are mastered over time with supported practice and are largely unachievable in typical one-shot instruction sessions (Meyer & Land, 2006; Pinkley & Hoffmann, 2017). Conversations around Framework implementation have led to the reemergence of the embedded instruction model and a reframing of faculty/librarian collaboration. Rather than embedding librarians across a curriculum, this new conversation focuses on embedding the concepts across the curriculum with librarians and teaching faculty iteratively co-teaching and reinforcing concepts in a variety of contexts.

The journey through a threshold of understanding is largely individualistic and unique to each learner. Once through the threshold, learners have an altered perception and understanding of information – their thinking has changed irreversibly. Irreversibility is problematic for librarians teaching threshold concepts to new learners. Librarians have essentially crossed the threshold, and it is difficult to remember back to a time when they did not "know" (Burkhardt, 2016). The process of crossing the threshold is gradual, and librarians struggle to create ah-ha moments for students. The focus on individualized growth is contrary to modern assessment and accreditation culture in higher education, which focuses on institutional, program, or department level standard mastery rather than standard mastery for individual students (SACS-COC, 2017). This

problem intersects the increased challenge in assessing student learning and growth. Libraries have struggled with assessment, even with the prescriptive Standards. The Framework increases this struggle as threshold concepts are not easily measured in a standardized way. By losing the tangible evidence of success with the skills-based Standards, librarians have expressed growing concerns regarding on-boarding faculty and administration to the Framework (Beilin, 2015; Pinkley & Hoffmann, 2017).

Debate. Critics of the Framework have expressed concern that the theoretical underpinnings of the Framework have been adopted from a discipline outside of library science. This foreign adoption has created division in the library community as many librarians feel no sense of ownership of threshold concepts, questioning whether or not they have sold out on their discipline (Beilin, 2015). Wilkenson (2014) has argued that threshold concept theory has not been scientifically validated and damages librarian credibility with other academic disciplines.

Bravender et al. (2015) countered that while threshold concepts are a newer theory, they have been implemented in computer science, engineering, biology, and economics for over a decade. Early adopters of the Framework view the use of a non-library science theory as an opportunity to demonstrate the interdisciplinary nature of information literacy. The Framework provides a greater degree of flexibility in demonstrating how the conceptual understandings of information literacy are congruent with the learning outcomes of the disciplines within the academic institution; thus, allowing librarians to collaborate with faculty on equal footing and establish common goals for student learning, moving the library role away from point-and-click to learning mentor (Cooke, 2010; Cowan & Eva, 2016).

Threshold Concepts and Liminal Space

Meyer and Land (2005) defined threshold concepts as conceptual gateways or portals that lead to previously inaccessible ways of thinking. The metaphor is cemented with the image of a doorway signifying a learner's transition between old and new understandings of knowledge. Threshold concepts emerged as part of the 2003 ETL Project, an investigation Meyer and Land conducted into the teaching and learning practices utilized in undergraduate courses. These conceptual gateways are places where students get stuck as they interact with knowledge that is troublesome, difficult to learn, and challenges existing assumptions (Land et al., 2014; Perkins, 1999). Using Perkins's theory as a jumping off point, Meyer and Land imbued Troublesome Knowledge as a defining feature of threshold concept theory (Barradell, 2013; Felten, 2016; O'Donnell, 2010; Rowbottom, 2007). Threshold concepts emphasize the "epistemological transitions" (Meyer & Land, 2005, p. 386) of the learner, profound changes that irreversibly transform how learners know, understand, and apply knowledge (Fister, 2015; Timmermans, 2010). At this point, knowledge ceases to be surface level and rote, instead knowledge can be deeply understood and applied.

Meyer and Land (2005) have identified five defining characteristics used to classify threshold concepts. These characteristics continue to be discussed and modified as the scholarly conversation on this topic continues to expand (Entwistle, 2008). Threshold concepts are listed in Table 1 (Meyer & Land, 2005, 2006):

Table 1

Five Threshold Concepts and Descriptions

Threshold Concept	Description
Troublesome	Counterintuitive, representative of a place where students struggle or get stuck.
Transformative	Changes how something is understood; a paradigm shift.
Irreversible	Once learned are most likely not to be unlearned; lasting impact of thought and process.
Bounded	May be unique to a discipline or may help define the discipline to the student.
Integrative	Leads to an expanded understanding allowing students to make connections between separate concepts.

Meyer and Land identified three additional characteristics that have been alternately included and removed from scholarship on threshold concept theory (Baillie et al., 2013). Library Science, for instance, only employs the original five characteristics. Additionally, the liminal space is treated as a stage in the learning process rather than a defining characteristic of a threshold. Threshold concepts can be discursive, reconstitutive, or liminal (Meyer & Land, 2006). Table 2 provides Meyer and Land's (2006) description for each additional threshold concept.

Table 2

Additional Threshold Concepts Identified by Meyer and Land

Threshold Concept	Description
Discursive	Enhanced or extended use of disciplinary language.
Reconstitutive	Involving a shift in learner subjectivity.
Liminal	The stuck place where students wrestle with conceptual understanding.

Criticisms of threshold concepts. While threshold concept theory is growing in application across many disciplines, it has garnered criticism from scholars who question its open approach to conceptual understandings. Critics have noted the lack of prescriptiveness of the five defining characteristics of the theory, and question how many of the characteristics must a concept have to be a threshold concept (Barradell, 2013; O'Donnell, 2010; Rowbottom, 2007; Wilkenson, 2014). This question is not addressed or explored by Meyer and Land (2003, 2005, 2006). Barradell (2013), however, citing a 2009 study by Irvine and Carmichael, noted that very few identified threshold concepts possess all five characteristics, leaving the process of defining thresholds within a discipline up to researchers who may understand thresholds in different and disparate ways (Rowbottom, 2007). As stated previously, many researchers use troublesomeness as the most important defining characteristic. Considering that a concept could display an unknown number of the defining characteristics to be labeled as a threshold concept, using troublesomeness as the primary measure becomes problematic as it implies that anything conceptually difficult is a threshold concept (Barradell, 2013).

The language with which the five defining characteristics have been written poses another problem. In their original and subsequent texts, Meyer and Land (2003, 2005, 2006) repeatedly referred to threshold characteristics as probable, likely to be, often but not necessarily, and possibly in nature. O'Donnell (2010) begs the question, can probable characteristics be defining? Scholars studying threshold concepts are prone to modify characteristic definitions, often eliminating all or most of the nebulous qualifiers – thus possibilities have been converted into definitive statements (O'Donnell, 2010). This practice seems to be supported by Meyer and Land (O'Donnell, 2010). Critics also call into question the empirical nature by which thresholds have been identified, stating

that methodologies are informal and do not take into account that thresholds can be agent relative (O'Donnell, 2010; Rowbottom, 2007). Methodologies for identifying thresholds within a variety of disciplines have focused on data collection from small-scale interviews, surveys, and document analysis. Left unanswered is how many learners have to undergo a conceptual transformation for it to qualify as a threshold (O'Donnell, 2010; Wilkenson, 2014). Rowbottom (2007) expressed concern that agent relativity, what is transformative for one may not be transformative to all, does not factor into many methodologies. Barradell (2013) entreated for more agreement on defining characteristics and methodological standards within the professional community.

Another area of concern for critics is threshold concept's tendency to reduce disciplinary concepts into a core set of beliefs (O'Donnell, 2010). While this researcher calls into question this critique, based on the previously stated lack of definitive qualifiers for what constitutes a threshold concept, the counter-argument for this critique is worth exploration. This reduction to a core set of disciplinary beliefs suggests that only a single reputable school of thought within each academic discipline exists (O'Donnell, 2010). In reality, there are many schools of thought that hold scholarly merit, and it should be acknowledged that each school may have complimentary and disparate threshold understandings. It is also suggested that threshold concepts teach students to think and operate within a particular framework, thus locking future scholars into disciplinary silos (O'Donnell, 2010). While this criticism expresses concern that the theory does not foster creative and innovative thinking, it should be noted that a goal of threshold concept mastery is making integrative critical connections that expose relationships between seemingly unrelated conceptual understandings (Meyer & Land, 2005).

Troublesome knowledge and liminal space. Troublesome knowledge

represents Stuck Places where learners are challenged by conceptually difficult knowledge (Meyer & Land, 2005, 2006; Perkins, 1999, 2008). As students confront these Stuck Places, the unfamiliarity of the terrain proves to be off putting as students wrestle with knowledge that may contradict previous learning (Davies & Managan, 2008; Felten, 2016; Perkins, 2008). For example, with the information literacy frame "Authority is Constructed and Contextual," students are introduced to the concept that authority is not necessarily defined by scholarly expertise; authority could be influenced by experience, current popularity, or prestige (Bravender et al., 2015). Students are encouraged to be critical of the source, recognizing that authority is complex and holds multiple meanings. As students wrestle with this new definition of authority, it challenges previous teachings that define authoritativeness by scholarly expertise, leaving the student in a liminal space experiencing stuckness as they wrestle with troublesome knowledge (Meyer & Land, 2005; Savin-Baden et al., 2008).

In context to Meyer and Land's (2005) doorway metaphor, the liminal space is where students have entered the threshold but are not yet able to cross it. Understanding has irreversibly been transformed, but the concept is not yet mastered (Meyer & Land, 2005). In the liminal space, students display three defining features: oscillation between growth, stagnation, and regression; strong emotions; and mimicry of concept mastery (Entwistle, 2008; McCartney et al., 2009; Meyer & Land, 2005; Savin-Baden et al., 2008). As students enter the threshold and begin to struggle with new concepts, regression or stagnation is likely to occur. This phase of regression and stagnation does not mean the student has abandoned learning the concept; they are merely in a stuck place where they are reforming their own framework for understanding. This phase of transformation is often riddled with anxiety and intense emotion (Felten, 2016;

McCartney et al., 2009). In his 2016 research study, Felten's students described this process as upsetting, shocking, helpless, frustrating, and debilitating. Much of the literature has ignored the role of the instructor in moving students through this liminal space. Instructors could support and maximize student growth in the liminal space through the process of formative feedback. Proven valuable in increasing student confidence in other applications, the formative process could increase confidence in the liminal space, a crucial component to growth within the threshold (Felten, 2016).

Depending upon the learner and the concept, a student could remain in the liminal space for an extended period of time. As students move past the initial phases of regression and stagnation, they will often mimic concept mastery (McCartney et al., 2009; Meyer & Land 2005). In this stage of mimicry, students are demonstrating skills associated with mastery but are unable to demonstrate deep understanding of the concept. For example, with the ACRL frame "Research as Inquiry," an instructor may ask students to develop a research question to guide their research. With assistance, students are able to craft an exploratory, cause and effect question. Within the same course, students may be able to craft a second research question without assistance, mimicking their previous experience. When required to explain why the research question should be exploratory or transfer the experience to another course, students are often unable to complete the transfer or make the deeper connections, illustrating that the concept has been mimicked but not mastered. Mimicry is largely viewed in a negative light, but McCartney et al. (2009) offered a different perspective, suggesting that mimicry offers students opportunities for repeated practice. Repeated practice supported by formative feedback allows students to improve their confidence and form deeper understandings of the concept (Earl, 2013; Felten, 2016; McCartney et al., 2009).

The liminal space is described as a holding place where students are "betwixt and between established categories, such as novice or expert" (Felten, 2016, p. 5). In considering the pathway from novice and expert, it must be asked what a library's goal in information literacy instruction is. Hofer et al. (2012) and Hofer, Brunetti, and Townsend (2013), all on the framework development committee, suggested that students be approached as potential practitioners who would benefit from understanding the threshold concepts of librarianship. Other librarians are countering this school of thought, questioning the practice of crafting students into practitioners of library science. They wonder if librarians, instead should be fostering curious, critical thinkers who understand how information works broadly and within their chosen academic discipline (Fister, 2015).

Another question librarians must consider is whether it is appropriate to take students into the liminal space and leave them there. Leaving students in the liminal space is a philosophical and pedagogical quandary that has not been fully fleshed out in the literature. As stated previously, many librarians are limited to one-shot style instruction sessions. A one-shot session, or even a series of one-shot sessions, does not afford librarians enough time to overcome social barriers and bring students to full concept mastery. The best hope is that librarians can bring students into the liminal space leaving students in the hands of faculty colleagues to assist students into mastery, which can sometimes span across several semesters of study (Cowan & Eva, 2016; Meyer & Land, 2006). This possibly undefined collaboration between faculty and librarians poses additional concerns for assessing growth, transferability, and concept mastery. These topics are discussed later in this chapter.

Threshold Concepts and Transfer of Learning

In dealing with threshold concepts, instructors cannot ignore the role of troublesome knowledge in Instructional design. Tackling these Stuck Places is essential for students transitioning from the liminal space to concept mastery. This section focuses on the intersection between threshold concepts, UbD, and Transfer of Learning as it impacts Instructional design. The ACRL Framework incorporates Wiggins and McTighe's (2005) theory of UbD, also referred to in the literature as backwards design. This design model begins with framing instruction and assessment around core concepts (Wiggins & McTighe, 2005), learning outcomes in most disciplines or the ACRL frames in library science. By building curriculum around these Stuck Places, the learning of essential concepts becomes more rich, meaningful, and effective (Baillie et al., 2013; Perkins, 2008; Wiggins & McTighe, 2005). A challenge, as noted by Perkins (2008) in a 1989 study by Bransford, Franks, Vye, and Sherwood, is getting students to transfer their learning and knowledge to other applications where it holds relevance. This inability to transfer learning indicates a lack of concept mastery and that the student is still in the liminal space.

The concept of transfer is ingrained in the underpinnings of higher education, as evidenced by prerequisite requirements, liberal arts programs, and general education core curricula (Moore, 2012). Transfer of learning, also referred to in the literature as knowledge transfer, is the ability to transfer learning/knowledge from the original learning context and apply it to a new and structurally dissimilar learning context (Haskell, 2001; Foley & Kaiser, 2013; Moore, 2012; Wiggins & McTighe, 2005). The goal of transfer is not merely application of knowledge and skills, but to extend understanding (Wiggins & McTighe, 2005) – indicative of moving through the threshold.

Within transfer of learning, there are multiple accepted taxonomies as described in Table

3.

Table 3

Taxonomies of Learning Transfer

Taxonomy of Learning Transfer	Description
Near/Far Transfer	Near transfer is the application of knowledge/understanding to contexts similar to the original learning situation. Far transfer is the ability to adapt and apply previously learned knowledge/ understandings to a dissimilar context to the original learning situation (Foley & Kaiser, 2013; Moore, 2012).
High-/Low-Road Transfer	Low-Road transfer involves applying practiced skills that can be easily replicated in any given learning situation. High-Road transfer involves reflective recall in applying learning to a new context (Foley & Kaiser, 2013; Moore, 2012; Saloman & Perkins, 1989).
Positive/Negative Transfer	Positive transfer happens when previous learning compliments current learning contexts. Negative transfer occurs when a learner is unable or unwilling to see how learning could be applied in a new learning context (Foley & Kaiser, 2013).
Haskell's Taxonomy of Learning Transfer	Haskell's taxonomy identifies six progressive stages of transfer: non-specific, application, context, near, far, and displacement/ creative. Within the progressive stages, the rate of transfer is influenced by five types of knowledge and 14 types of transfer which represent a secondary taxonomy within the greater framework. Haskell's taxonomy posits as its own theoretical framework (Calais, 2006; Foley & Kaiser, 2013; Haskell, 2001).

The solution to enabling students to transfer learning lies in Instructional design.

Meyer and Land (2006) recommended instructors use a combination of scaffolding,

recursiveness, and supplemental material to support students as they traverse the

threshold. These strategies, particularly scaffolding and practice, appear throughout

scholarship as effective methods for teaching and learning (Brown et al., 2014; Foley &

Kaiser, 2013; Hung, 2013; Thomas, 2007; Wiggins & McTighe, 2005). Meyer and Land (2003, 2005, 2006), however, left out the role of the instructor, instead focusing on design structure and materials. Other researchers (Black, Harrison, Lee, Marshall, & Wiliam, 2003; Brown et al., 2014; Earl, 2013; Foley & Kaiser, 2013; Hung, 2013) stress the importance of the instructor's role as facilitator and mentor. Students are not inherently self-directed and need support as skills of self-direction are developed. Entwistle (2008) and Thomas (2007) acknowledged that transfer and concept mastery do not occur by happenstance for the student; instructors must take an active facilitation role that goes beyond Instructional design.

  Instructional design and transfer. Developing Instructional design that supports transfer and concept mastery is conceptually difficult, making it a threshold concept for faculty (Moore, 2012). Faculty are often challenged by the long-term implications of designing for transfer, which involves supporting concept mastery and transfer beyond the boundedness of a particular course or discipline (Moore, 2012; O'Donnell, 2010). Perhaps the greatest struggle for faculty Instructional designers is turning threshold concepts into transferable principles of teaching and learning (Davies & Managan, 2008). While conceptually simple, translating concepts into transferable principles of teaching and learning is complicated because the faculty member has long since crossed disciplinary thresholds. Faculty are then placed in an opposite position to the student, needing to reach back through the threshold peeling back the layers of their own knowledge and expertise to a time before they "knew" (Land et al., 2014; Hofer et al., 2012, 2013). Faculty must also consider the agent relativeness of threshold mastery and prepare to support learners with differentiated experiences (Baillie et al., 2013; Land et al., 2014). The balance between agent relativity and differentiation of instruction

leaves faculty facing the looming quandary: How can students be facilitated in the liminal struggle?

Assessment and Feedback

Faculty seeking to transform their teaching practice to support transfer and concept mastery should prepare for a slow-change process (Black et al., 2003). While scholarship denotes the positive impact of scaffolding, reflective practice, and formative feedback, incorporating these assessment activities into Instructional practice involves a shift in how faculty view assessment culture (Black et al., 2003; Land et al., 2014). Changes in Instructional practice support students in learning to do rather than learning about, providing "cognitive hooks" that allow students to begin recognizing relevant applications for learning outside of the original learning situation (Palloff & Pratt, 2009; Perkins, 2008, p. 13). This section addresses shifting perceptions in assessment culture that affect change through the use of reflective practice and formative feedback in the higher education setting.

Educational culture is dominated by testing and assessment. Focus and priority is placed on standardization and drilling down to the common denominator that proves learning has occurred. Assessment can be retooled as a mechanism to support learning and development, demonstrating that understanding has gained priority over memorization of material (Black et al., 2003; Earl, 2013). While both formative and summative assessments have their role in the educational landscape, formative assessment supports learning for understanding (Earl, 2013). Through formative, reflective practice, students begin to tackle Stuck Places by making mistakes and correcting them (Brown et al., 2014; Earl, 2013). While the Instructional design of a course may be carefully crafted, Earl (2013) noted that students often felt as though these

scaffolded assessments felt random. Students failed to make the connection between

individual assessments and the overarching learning outcomes of the course. For

scaffolded lessons and assessments to hold relevance and meaning, instructors need to

introduce students to the framework of their intended learning (Ainsworth, 2010; Black et

al., 2003; Entwistle, 2008; Thomas, 2007).

Earl (2013) presented a framework of three categories for understanding the role

of assessment: assessment of learning, assessment for learning, and assessment as

learning. This framework is explored in Table 4.

Table 4

Earl's Framework of Assessment Of, For, and As Learning

Assessment Type	Description
Assessment OF Learning	Intended to certify that learning has occurred. This form of assessment is summative and is most often employed.
Assessment FOR Learning	A diagnostic process of formative learning that provides instructors with information that will aid them in modifying teaching and learning.
Assessment AS Learning	Emphasizes assessment as a process of learning, supporting metacognition.

The assessment for and as learning categories are formative processes, focusing

on learning through feedback and improvement. Using a pyramid schemata, Earl (2013)

demonstrated the ratio at which each level is most often employed as compared to the

inverted pyramid demonstrating the ideal ratio each level should be employed. Figure 1

depicts the traditional assessment pyramid with Assessment OF Learning representing the

most common mode of classroom assessment.
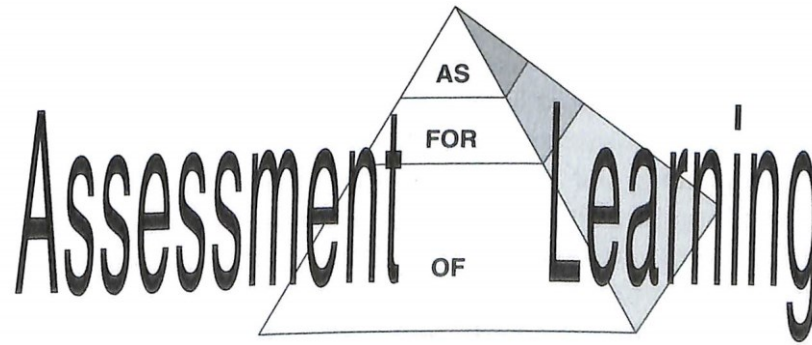
Figure 1. Traditional Assessment Pyramid (Earl, 2013, p. 31).

Figure 2 depicts Earl's (2013) suggested assessment pyramid with Assessment AS Learning as the base of the pyramid as the most common form of classroom assessment.
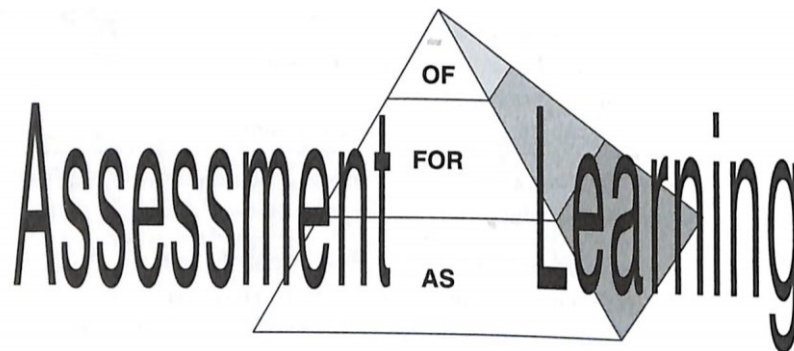
Figure 2. Reconfigured Assessment Pyramid (Earl, 2013, p. 32).

Psychologist Carol Dweck (2006) introduced the idea of growth and fixed mindsets in her text *Mindsets: The New Psychology of Success*. The fixed mindset is characterized by the fear of being perceived as not smart (Dweck, 2006). Dweck (2006) noted that students with a fixed mindset often resist challenging educational circumstances, seeming to only show interest in learning when they are confident they will do well. These students may never cross the threshold or only experience minimal learning transfer as they are resistant to entering or wrestling with the liminal space. The

growth mindset is characterized by a willingness to work through challenges as they are

viewed as opportunities to stretch and deepen understanding (Dweck, 2006). Students

demonstrating a growth mindset are more likely to develop self-direction in their

learning. A self-directed learner, with Instructional support, will be more likely to enter

the threshold and achieve transfer and mastery (Dweck, 2006; Entwistle, 2008; Felten,

2016; Perkins, 2008).

Assessments for and as learning can be used to cultivate the growth mindset and

break down a fixed mindset in students. For example, students participating in a

formative writing assignment are asked to evaluate an information source based on the

source's timeliness and relevance to their research question. By pointing out the year the

source was published without evaluating the publication date's relationship to the present

assignment, the student has missed a critical evaluative component. The following is an

example for how an instructor can support this student by providing feedback that

provides a pathway for improvement.

> [Student Name], I like how you have included the publication date of the
>
> source. As you make corrections to the assignment, I would like for you
>
> to consider the timeliness of the source in more depth. Address how the
>
> date of publication may have implications for how you use the source. Do
>
> you consider the information dated or is it still relevant and accurate?

In this sample taken from LIB 301, the instructor has taken a moment that a fixed

mindset student could perceive as failure and redefined it by providing guidelines for

successfully meeting assessment expectations (Dweck, 2006). The formative feedback

process makes evident to the student that learning is a process that involves growth rather

than a single event or measure of ability (Ainsworth, 2010; Black et al., 2003; Earl,

2013). Feedback can also be used as a tool to support students already demonstrating command of a concept. By providing specific feedback detailing how their understanding is on target provides positive reinforcement to the student to continue fostering their current habits. The instructor's role is to scaffold this process, providing a framework of learning outcomes and supporting tasks that help students attain them (Black et al., 2003; Wiggins & McTighe, 2005). Instructors should be cognizant of tone in providing feedback as it influences student attitudes towards their learning (Danielson, 2006). In a research study, instructors reported that the tone of feedback with adult students was particularly important, with one instructor advocating for using gentle language and avoiding the "scolding effect" (Richardson, Besser, Koehler, Lim, & Strait, 2016, p. 90).

Feedback loops. The formative assessment and feedback loop provides an opportunity for students to practice applying their knowledge and skills. While part of this process could be the mimicry stage (McCartney et al., 2009), students slowly gain confidence and competence which leads to increased problem-solving in new settings (Earl, 2013). As instructors and students engage in the feedback loop, students begin to reveal how they think and understand (McCartney et al., 2009; Wiggins & McTighe, 2005). Instructors are able to account for agent relativity, providing tailored support that can increase a student's effort and motivation as they move through the threshold (Earl, 2013). While the impact of specific instructor feedback on learning has been deemed negligible by critics, students report positive reactions to personal feedback because it is encouraging and leads to improvement (Gibbs & Taylor, 2016; Richardson et al., 2016). Some studies purport that self and peer feedback have a stronger influence on student learning than instructor feedback (Black et al., 2003; Gibbs & Taylor, 2016); however, it

should be noted that students may lack the expertise of the instructor and may be unable to provide the depth and specificity needed to improve understanding (Merriam, Caffarella, & Baumgartner, 2007). Black et al. (2003) noted that including students in the feedback writing process pushes them into a more active, self-directed role in their own learning; however, students reported feeling frustrated with this method, as it left them struggling to teach themselves, perhaps reducing the learning of a concept (Gibbs & Taylor, 2016). Research suggests that students may benefit from both models of feedback (Black et al., 2003; Gibbs & Taylor, 2016), but instructors should model and make explicit feedback expectations prior to asking students to self or peer assess.

Studies on the impact the feedback process has on instructors and course design are limited. A recent study by Richardson et al. (2016) investigated instructor perceptions on the feedback process in online courses. In this study, instructors largely viewed feedback as a means of developing online presence and communicating with students (Richardson et al., 2016). Black et al. (2003) reported that the feedback loop has a direct impact on course and assessment design. As student conceptual understandings are made clear through the formative process, teachers become more dissatisfied with their teaching practices as they become more specific and thoughtful in the feedback process; to this point, instructors recognize trends in their feedback leading to strengthening and modification of their assessments (Black et al., 2003). This slow change process aided instructors in crossing their own threshold in designing assessments that promote transfer (Moore, 2012).

Adult Learning

The focus of this study was to assess the transfer of information literacy learning in adult undergraduate students at a higher education institution. Current literature on

information literacy acquisition and assessment largely ignores undergraduate adult

learners. In researching this topic, the following searches were conducted in multiple

discovery search engines: ("information literacy") AND ("undergraduate adult" OR

"undergraduate adults"), ("information literacy" AND "adult Learn*"), (library

instruction AND adult learn*). Three research studies by Cooke (2010), Rapchak and

Behary (2013), and Rapchak et al. (2015), conducted prior to the implementation of the

ACRL Framework, focused on undergraduate adults and information literacy acquisition

and assessment. Currently, no research studies have been published focusing on

undergraduate adults and information literacy acquisition or assessment pertaining to the

ACRL Framework. This section focuses on the defining characteristics of adult learners

and theories of adult learning.

Characteristics of adult learners. Adult learners in higher education are

identified by several defining characteristics setting them apart from their undergraduate

peers. An adult undergraduate is typically 25 years or older and has a varied ratio of full-

to part-time employment versus college enrollment (Bash, 2003; Zhang, Lui, &

Hagedorn, 2013). Many adult learners are extrinsically motivated to attain a

postsecondary degree by changes or opportunities in employment or to avoid being

"financially or socially marginalized" (Illeris, 2004, p. 85; Kasworm, 2008a, 2008b). As

students, adult learners experience a greater degree of emotional conflict, due to

balancing the complexities of life that may not end with college enrollment as it does for

most traditional age students (Bash, 2003; Kasworm, 2008a).

Emotional conflict often leads adult learners to feel doubt and insecurity,

reflecting on past negative learning experiences which subjugates confidence in their

ability to perform well in a college setting (Brookfield, 2006; Kasworm, 2008a). Studies

have shown that adult learners at all levels of postsecondary learning are susceptible to this sense of impostership at some point in their academic career (Brookfield, 2006; McDowell, Grubb, & Geho, 2015). Impostership is defined by McDowell et al. (2015) as the distance between a student's current state and the idealized version of the academic self. In a 2016 study by Coberly-Holt and Braun, students exhibiting symptoms of impostership doubted their intelligence and ability to succeed, resulting in limited development as learners and critical thinkers. This diminished perception of intelligence is indicative of Dweck's (2006) fixed mindset, with students believing their intelligence and talents are fixed traits incapable of improvement. Students exhibiting imposter syndrome are at risk of becoming resistant learners as "students who believe their intelligence is fixed have no reason to put in the time and effort to improve" (Ambrose et al., 2010, p. 200).

Resistance, in the form of learning ambivalence related to student confidence in their experimental knowledge and technical literacy, is rarely addressed in the literature (Illeris, 2004; Kasworm, 2008b). Students in these categories tend to enroll in professional degree programs, such as business, accounting, education, ministry, and human services (Kasworm, 2008b). Students showing ambivalence to learning often feel marginalized and undervalued by the university and classroom faculty (Kasworm, 2008b; Sissel, 2001). Resistant learners, interviewed in a 2003 study by Kasworm (2008b), reported feeling as though their professional experience was viewed with little importance by classroom faculty. These learners exhibited compliant behavior motivated by "good grades," minimal classroom participation, and short-term learning of course content for the purpose of completing an assessment, "jettisoning" the knowledge afterwards (Illeris, 2004; Kasworm, 2008b, p. 29). This moment-to-moment decision-

making strategy for learning impacted what content students retained long term versus short term. Concern is warranted as long-term learning was most often reserved for knowledge that was congruent with established experiences and beliefs (Cooke, 2010; Illeris, 2004; Kasworm, 2008b), demonstrating that the student resisted entering a conceptual threshold.

Theories of adult learning. Numerous theories and models for adult learning exist in the literature, with many of the theories philosophically grounded in Dewey's research on the impact of experiential learning over rote memorization (Spalding, 2014). Two theories that have gained traction as foundational models of adult learning are Knowles's (1978) Andragogy and Mezirow's Transformative Learning, which was developed in 1978 (Mezirow, 1997). For the purpose of this study, adult learning will be viewed through the lens of Mezirow's Transformative Learning.

Knowles: Andragogy. Andragogy was developed by Malcolm Knowles in the 1970s to counter pedagogy; asserting that adults learn differently than children. Knowles (1978) described andragogy as a model of assumptions built around the conceptual image of the adult learner (Hiemstra, 1993; Knowles, 1978; Merriam et al., 2007; Pratt, 1993). Knowles (1978) assumptions of the adult learner include

1. Changes in self-concept – as a person ages they move from a state of dependence to a state of self-direction.
2. Life experience – the learner is defined by their collective experience.
3. Readiness to learn – the learner's readiness to learn is a product of evolving social roles that influence personal development.
4. Problem-centered orientation to learning – applying what you have learned to new and different situations.

5. Motivation – the learner is intrinsically motivated to learn.

While strikingly popular, criticisms of andragogy focus on its debated prescriptiveness and models of self-direction. Knowles (1978) referred to the tenets of andragogy as a set of assumptions, leaving practitioners of the model uncertain whether or not these characteristics are meant to be prescriptive statements describing who adult learners are or dispositions describing what adult learners should be (Merriam et al., 2007). A problematic component of this uncertainty is how the concept of self-direction, of which Knowles (1978) stated that adult learners have a deep need to engage in, is addressed in scholarly literature. Self-directed learning has gained an "almost cult-like quality to the extent that [it] is viewed as the essence of what adult learning is all about" (Caffarella, 1993, p. 25).

Self-directedness in learning is defined as students who are actively involved in the planning, constructing, and evaluation of their learning experience (Merriam, 1993; Merriam et al., 2007). This process of self-directed learning accounts for student experience to factor into the creation of learning experiences and assessments. Brookfield (1986), an early critic of self-direction, countered that just because an adult student was longer lived than a child, it does not mean that their life experience translates to the type of quality experiences that support meaningful learning. Several studies (Rachal, 2002; Rosenblum & Darkenwald, 1983) have investigated the use of self-direction as students participated in the planning and evaluation of their learning experiences. Of the 18 studies conducted, researchers noted inconclusiveness or no difference in self-directed learning's impact on student satisfaction in the learning process. Merriam et al. (2007) suggested that "perhaps the nature of andragogy, with its assumptions for adult learner-focused practice makes it difficult to validate" (p. 91). This

difficulty in validation resonates with criticisms of Meyer and Land's (2003, 2005, 2006) threshold concepts theory.

Merriam et al. (2007) offered the only iteration of self-directed learning that acknowledges that not all adult learners are inherently self-directed. As previously stated, Knowles (1978) described his theory of andragogy as a set of assumptions regarding adult learners. In assuming that self-direction is a process of learning rather than an inherent trait of adult learners, students can be transformed into self-directed learners. Merriam et al. (2007) recommended instruction in the formal academic setting should be inclusive of self-directed methods of learning in order to foster this trait in adult learners. Previous research (Ambrose et al., 2010; Dweck, 2006; Earl, 2013) purports that students exist on a metacognitive spectrum, exhibiting a range of growth and fixed mindsets that are dependent on the learning situation. In existing on a spectrum ranging from fixed mindset/resistance to growth mindset/self-direction, students can be cultivated into self-direction with the assistance of their instructors and metacognitive scaffolding (Ambrose et al., 2010; Dweck, 2006; Illeris, 2004). This instructive approach allows students who may have underlying self-directed tendencies but lack sufficient content knowledge to gradually develop into a fully self-directed learner (Merriam et al., 2007).

Mezirow: Transformative Learning. Transformative Learning was developed as a constructivist adult learning theory by adult education sociologist Jack Mezirow in 1978. The core of the theory states that learning is a "rational, critical, cognitive process that requires thinking, reflection, questioning, and examination of one's assumptions" (Merriam & Bierma, 2014, p. 86). Mezirow (1997) described it as the "process of [a]ffecting change in a frame of reference" (p. 5). The concept can be further refined as a

transformation of the learner's lens of understanding and habits of mind as they move through the learning process (Illeris, 2014). The resulting learner is a reflective, autonomous thinker who critically navigates and applies knowledge to new events and situations that are incompatible with their previous experience (Merriam, 1993; Mezirow, 1997; Quinn & Sinclair, 2016; Stansberry & Kymes, 2007). This process can be likened to Meyer and Land's (2003, 2005, 2006) threshold concepts theory in that once the transference has occurred, it is often permanent.

Adult learners often focus their attention on short-term goals, as they have immediate, visible application to daily life experience (Mezirow, 1997). In order to support transformation through learning, instructors need to be transparent and purposeful in making connections between immediate objectives and the long-term benefits of concept mastery (Ainsworth, 2010; Mezirow, 1997). Mezirow's (1978) model of transformative learning involves 10 phases in the transformation process. This model was developed based on his research of adult women reentering higher education after a significant gap in their educational trajectory. While initially Mezirow's (1978) model was limited to the study of adult women, he theorized that this same model could be applied to all adult learners reentering the educational system (Nohl, 2015). The 10 phases for transformative learning are (Mezirow, 2000, p. 22)

1. A disorienting dilemma.
2. Self-examination of feelings of fear, anger, guilt, or shame.
3. A critical assessment of assumptions.
4. Recognition that one's discontent and the process of transformation are shared.
5. Exploration of options for new roles, relationships, and actions.

6. Planning a course of action.

7. Acquiring knowledge and skills for implementing one's plans.

8. Provisional trying on of new roles.

9. Building competence and self-confidence in new roles and relationships.

10. A reintegration into one's life on the basis of conditions dictated by one's new perspective.

Mezirow's (1978) process of transformative learning shares similar tenets to Meyer and Land's (2003, 2005, 2006) tenets of threshold concept theory. Though Meyer and Land (2003, 2005, 2006) do not reference Mezirow or transformative learning in their writings, a parallel between the two theories can be clearly drawn. Threshold concept theory is based on the premise that as students encounter troublesome places where they get stuck in their learning, comparable to Mezirow's (1997) disorienting dilemma, they cross a threshold into a liminal space where they must confront the juxtaposition between old and new knowledge. Within this liminal space, students experience a reconstitutive shift in perspective, comparable to Mezirow's (1997) reframing one's own assumptions, which is transformative in nature. As students grow into mastery of the concept, they mimic mastery and build self-confidence through repeated, reflective practice (Earl, 2013; Felten, 2016; McCartney et al., 2009). The process is culminated not only by mastery but by integration and application of learning to new and altered situations (Meyer & Land, 2005; Mezirow, 2000).

Adult learning in the online environment. Adult learners are attracted to online learning due to the convenience and flexibility it offers. Studies have shown that intrinsic self-efficacy has no bearing on a student choosing online education, but that technology literacy and ability to self-regulate learning has a significant impact on student perception

of self-confidence within a course (Kuo & Belland, 2016). As more students enter online programs, instructors need to consider learner-focused Instructional practices, a hallmark of both Knowles (1978) and Mezirow's (1978) learning theories, in course design for adult learners. Learner-focused instruction includes developing learning processes and experiences that allow students to make active and reflective connections between prior and new learning (Illeris, 2004; Knowles, 1978; Palloff & Pratt, 2007). Instructional designers need to consider that adult learners often enter the online classroom with preconceived, and possibly negative, notions about online learning, which can lead to resistance cycles among learners. To combat potential resistance, instructors should reconsider poor design practices such as misaligned assessments and inadequate feedback that hinder learning transfer (Kauffman, 2015; Palloff & Pratt, 2007).

Course design should provide students with a transparent framework for how learning is structured, how it will be delivered, and how it will be assessed (Entwistle, 2008). Design structure should provide a clear and structured path to Instructional content allowing students to wrestle with course content rather than the course's design. Kauffman (2015) noted that learning management systems notoriously set instructors up for poor course design due to their drag and drop interface. These poor design habits lack consideration for content placement and structure.

Online learning can be a potentially isolating experience for both students and instructors. Course design should provide opportunities for interactions that allow members of the community to establish social presence and build rapport (Kuo & Belland, 2016). Social norms, presence, and report are easily and often unconsciously established in face-to-face courses. Judging understanding of content can be detected through nonverbal cues, allowing for on-the-fly instruction delivery modifications as

needed. In the online environment, instructors need to intentionally build community engagement to fill the gap. In establishing presence online, students were less invested in peer-to-peer contact but felt that instructor presence in the classroom was crucial to their success (Kauffman, 2015; Richardson et al., 2016). Presence can be established through a variety of written and video communications, delivered informationally, or through the feedback process. In this capacity, instructor presence assumes a vital role in the process of learning transfer (Kauffman, 2015; Richardson et al., 2016).

Effective online learning that supports transfer is not possible when assessments are inauthentic or misaligned. In designing authentic assessment that supports transfer, instructors need to be cognizant of the alignment between learning outcomes, content, delivery, and assessment (Ainsworth, 2010; Kauffmann, 2015). Authentic assessments encourage learners to actively apply learning in a way that supports connecting prior experience to new learning (Palloff & Pratt, 2007; Wiggins & McTighe, 2005). Adult learners who have a fixed mindset or low confidence are often resistant to authentic assessment, preferring the comfort of instructor-driven, passive learning (Kasworm, 2008a, 2008b). The delivery of authentic, instructive assessment should include transparent expectations that outline the intended pathway for student growth. This process challenges fixed mindsets by providing tangible value in how the assessment will contribute to student success. Authentic assessment, supported by reflective practice and instructor feedback, is viewed by adult learners as critical to the quality, success, and learning in an online course (Kauffman, 2015).

Conclusion

In conducting this literature review, several parallels emerged in educational theory. Gaps in the literature regarding adult learning and information literacy became

prevalent. By investigating the foundations of threshold concepts, transfer as learning, and transformative learning, distinct connections emerge between these theories concerning how the learning process is conducted and applied. Each theory posits a liminal or stuck place where students first engage with concepts that challenge their understandings (Meyer & Land, 2005; Mezirow, 1997; Perkins, 1999). By engaging in a recursive process, students practice and reflect on their learning which leads to deeper conceptual understandings (Meyer & Land, 2005; Perkins, 2008; Wiggins & McTighe, 2005). Mastery or transference is achieved when students can apply previous learning to new, yet different, situations where the concept or skill holds relevance (Foley & Kaiser, 2013; Meyer & Land, 2005; Perkins, 2008). Information literacy acquisition and assessment for adult learners, particularly undergraduates, are largely ignored in the literature. This is problematic as trends in higher education suggest that this is an increasing student population with unique experiences, perceptions, and needs (Kasworm, 2008a, 2008b; U.S. Department of Education, National Center for Education Statistics, 2018). The subject of adults participating in online education has not been widely covered. Considering the newness of the Framework and the gap in the literature regarding undergraduate adult learner information literacy, this study seeks to fill a noticeable gap in the scholarship of information literacy research. The next chapter reviews the planned methodologies for analyzing and exploring the research questions for this study.

Chapter 3: Methodology

Researchers (Black et al., 2003; Dweck, 2006; Earl, 2013) have investigated the relationship between engaging students in a positive feedback loop and growth. Often, instructors execute a variety of feedback models to find a model that works best (Wiliam, 2012). As student participation in the feedback loop is voluntary, Wiliam (2012) suggested that instructors begin analyzing the uncontrolled variable: "the response the feedback triggers in the recipient" (p. 32). This qualitative case study explored instructor and student perceptions on the feedback loop and its influence on transferability across assessments. Qualitative, exploratory design is "best used when an issue is not well understood in the literature or [is] previously unexamined" (Butin, 2010, p. 80). By triangulating data on instructor perceptions, types of feedback provided, and student responses to that feedback, this study sought to construct a contextual framework for how the feedback loop influences adult undergraduates. Data collection and analysis were guided by the following research questions.

1. What types of feedback occur in an online information literacy course for adult undergraduate students?

2. What perceptions do adult undergraduate students hold regarding how feedback influences their growth in the liminal space?

3. How do instructors describe their feedback style and beliefs regarding the role of feedback on the ability to transfer learning and growth in the liminal space?

This chapter examines the underpinnings of qualitative case study design, identifies the role of the researcher in the study, addresses issues of validity and reliability, and outlines the study's method of data collection and analysis.

Qualitative Research

Qualitative research seeks to holistically understand a problem in context to the environment in which the problem occurs (Butin, 2010; Creswell, 1998; Merriam, 1998). Researchers seek to construct meaning by identifying themes and constructs from the perceptions of study participants (Butin, 2010; Merriam, 1998). Qualitative design has been criticized for its reliance on perceptual data and researcher bias in data collection and analysis (Creswell, 2014). Validity and reliability measures, such as triangulation of data, reflexivity, external audits, and cross checking, are often used to combat researcher bias and positionality (Creswell, 2014).

Research design for qualitative studies occurs in several recognized orientations: positivist, interpretive, and critical research (Merriam, 1998). Positivist study views reality as fixed with knowledge gained through experimentation (Merriam, 1998). Interpretive study focuses on understanding the processes and lived experience of the phenomenon through inductive inquiry (Merriam, 1998). Critical research views the environment as a cultural institution through which knowledge is gained as an ideological critique of power structures (Merriam, 1998). Research for this study takes an interpretive orientation as the study investigates the phenomenon through the perceptions of stakeholders. The study follows a process of inductive inquiry as it is also the final, product evaluation stage of an ongoing CIPP evaluation of the phenomenon.

Case Study

Qualitative research can be conducted with a variety of approaches, the most common being case studies, biographies, phenomenological research, grounded theory research, and ethnographic research (Creswell, 1998; Merriam, 1998). Case studies provide researchers with the opportunity to gain an in-depth understanding of a

phenomenon or problem by focusing on process, context, and discovery rather than confirming a predetermined outcome (Merriam, 1998; Stake, 1995). The case study approach was selected as the most appropriate design for this study as it stems from a CIPP evaluation, where process and context are critical points of inquiry. Case studies are the recommended design for researchers who are investigating processes as part of a larger program evaluation, as they provide deeper understanding of program dynamics and ways to improve practice (Merriam, 1998).

Case studies, as defined by Creswell (1998), are an exploration of a bounded system or case "through in-depth data collection involving multiple sources of information rich in context" (p. 61). Stake (1995) identified three types of case study: intrinsic, instrumental, and collective. Intrinsic case studies focus on the unique insights of a particular case (Creswell, 1998; Stake, 1995). Instrumental case studies focus on a phenomenon that manifests repeatedly in a case or multiple cases (Creswell, 1998; Stake, 1995). Collective case studies, which can be instrumental, investigate a phenomenon across multiple cases (Creswell, 1998; Stake, 1995). This case study is instrumental, as it focused on the issue, or phenomenon, of how feedback might impact transferability.

While the case study approach is widely implemented in qualitative research, the design does pose certain limitations. Case studies are descriptive, and the final product is often lengthy; this can be an obstacle when sharing the study with stakeholders or policymakers (Yin, 2014). Case studies as a form of empirical inquiry have been criticized over possible lack of rigor, generalizability, reliability, and validity (Merriam, 1998; Stake, 1995; Yin, 2014). Perceived lack of rigor, Yin (2014) argued, stems from a lack of procedures assigned to case study design. The strength of a lack of procedure, however, allows the case study researcher to investigate complex social issues with

multiple variables and lens of understanding – situations that exist outside the bounds of procedural data collection and analysis (Merriam, 1998). As case studies typically focus on unique cases or occurrences of a phenomenon, generalizability is limited to providing perspective and theoretical application of study findings (Merriam, 1998; Yin, 2014). Issues with reliability and validity are of significant concern and researchers must take intentional measures to combat this limitation. The following section investigates reliability and validity measures in more depth.

Reliability and Validity

Merriam (1998) stated that "all research is concerned with producing valid and reliable knowledge in an ethical manner" (p. 198). Reliability and validity measures instill confidence in how an investigative inquiry is conducted and provides enough detail to support the results or conclusions of the study (Merriam, 1998). This section addresses how validity and reliability can be achieved in a case study and addresses specific measures taken in this case study to ensure validity and reliability.

Validity. Validity is the process by which researchers ensure that conclusions drawn from a study accurately depict reality (Creswell, 2014; Merriam, 1998). Strategies for achieving validity are triangulation of data, member-checking results, long-term observation, peer debriefing, external audit, and clarification of researcher bias (Merriam, 1998; Stake, 1995; Yin, 2014). This study used triangulation, peer debriefing, and clarification of researcher bias to ensure validity.

Data triangulation is the use of multiple data sets to justify or confirm emerging themes (Creswell, 2014; Merriam, 1998). The researcher collected data from instructors and students on the perceived impact of feedback and samples of instructor feedback from each course.

Peer debriefing is the process of involving a peer to review findings and ask questions about the study "so that the account will resonate with people other than the researcher" (Creswell, 2014, p. 202). This study incorporates two peer reviewers, one who is a stakeholder in the library community and one who is external to the library community. Including both an insider and outsider peer reviewer ensures that the findings of the study are relatable to those within the discipline of library science or education.

Clarification of researcher bias is a reflexive process in which the researcher states perceptions, biases, and assumptions that might influence the analysis and interpretation of data (Creswell, 1998; Merriam, 1998). The bias and role of the researcher in this study is addressed later in this chapter.

Reliability. Reliability refers to the ability to which a researcher's approach to a study and findings can be replicated (Creswell, 2014; Merriam, 1998; Yin, 2014). In qualitative research, reliability can be problematic as human behavior and perceptions, neither of which is static, are under study (Merriam, 1998). According to Merriam (1998), the term reliability is misapplied in qualitative research as the aim is not to produce results that can be replicated, but rather results that make sense. She suggested reliability would be better termed dependability or consistency, meaning that the process by which the findings were achieved can be reasonably repeated (Merriam, 1998). Strategies to ensure the reliability of a study include triangulation of data, external auditing, intercoder agreement, and researcher positionality. Intercoder agreement, also referred to as cross-checking codes, is the process by which "two or more coders agree on codes used for the same passages in the text" (Creswell, 2014, p. 203). Cross-checking was used in this study in the analysis of questionnaire and reflection journal responses as

well as instructor feedback samples. Researcher positionality is the process by which the researcher explains how their position in the case impacts the selection of participants, assumptions, and the understanding of the social context of the case (Merriam, 1998). The position of the researcher for this study is further described in the next section.

Insider Research

The researcher of this study holds a unique role in the qualitative research process, as the researcher is "involved in a sustained and intensive experience with the participants" (Creswell, 2014, p. 187). Qualitative researchers must identify their bias, position, and background as they "may shape interpretations formed in a study" (Creswell, 2014, p. 187). The role of the researcher in this study is that of an insider researcher, characterized as a member of the community being studied with intimate knowledge of the community (Greene, 2014). In this study, the researcher is the curriculum and course designer as well as an instructor for the course under study. As a degreed librarian at the institution for over 10 years, the researcher has primarily worked with adult learners and has led professional development and training on Instructional strategy for other instructors of the course. The researcher is a Quality Matters certified peer reviewer. Quality Matters is a nonprofit, faculty-driven program that promotes improvement of online education through accessible course design and curriculum alignment. This certification has influenced the design and instruction practices of the course.

Insider research poses a variety of risks and advantages in a qualitative study but provides no particular advantage over outsider research in terms of objectivity (Greene, 2014; Unluer; 2012). The advantages afforded to the insider researcher include authentic knowledge of the interactions and language of the community under study, increased

access to data, and natural interactions with study participants (Greene, 2014; Unluer; 2012). The researcher in this study shares disciplinary language and knowledge of institutional culture and holds a shared understanding of the role of information literacy in higher education. As the curriculum and course designer, the researcher has increased access to data from the course and is responsible for collecting and reporting statistics from the course for institutional and accreditation reports. Instructors of the course have demonstrated prior willingness to participate and contribute to the context, input, and process evaluation cycles of the course.

Critics and proponents of insider research have identified a variety of disadvantages, of which the researcher should be aware as the methodological design occurs. Critics perceive insider research as overly subjective, stating that the researcher has become normalized to the environment and risks making assumptions based on prior knowledge (Greene, 2014; Unluer, 2012). Insider researchers may also have increased access to sensitive information that may impact anonymity and confidentiality in the study. Strategies to ensure anonymity and confidentiality for participants are addressed later in the chapter.

Insider researchers need to be reflexive, taking a preventative stance in addressing bias and other factors that might influence data collection and analysis (Creswell, 2014; Unluer, 2012). Reflexivity is the process by which the researcher reflects "about how their bias, values, and personal background shape[s] their interpretations formed during the study" (Creswell, 2014, p. 247). This process involves the researcher actively self-questioning their own perceptions and exposing their conceptualized view of the phenomenon (Greene, 2014). Insider researchers must be aware of projecting bias or personal views onto participants or data analysis. While awareness of bias is critical,

researchers should not fear bias, as it can also be a source of additional insight into the phenomenon from which outsider researchers are excluded (Greene, 2014). The insider researcher must take into account personal and professional relationships with and between study participants. Scholarly conversation on reflexivity notes that the positionality of both the researcher and participants may impact the authenticity of and emotional response to the data being analyzed (Greene, 2014; Unluer, 2012). Greene (2014) recommended that the researcher set a degree of emotional distance as part of the research design process.

Anonymity and confidentiality. The researcher in this study, as an insider, holds a close working relationship with participating instructors. These relationships may have influenced responses and analysis of data. Student participants in the study have no direct relationship or interaction with the researcher as data were not collected from the researcher's section of the course. In order to garner authentic, critical responses from participants and equitable analysis of data, measures were taken in the data collection process to ensure anonymity and/or confidentiality. Anonymity measures in data collection are taken to protect authenticity of responses and minimize researcher bias, while confidentiality measures are taken to protect participant privacy (Merriam, 1998; Yin, 2014). Protocols established by the researcher to protect anonymity and/or confidentiality are discussed further in the section on data collection.

Securing permission and informed consent. Data collection in an educational setting almost always "involves at least a small invasion of personal privacy" (Stake, 1995, p. 57). Researchers must gain informed consent from participants in an effort of transparency regarding the nature, design, and intent of the case study (Yin, 2014). In this study, instructors were provided an informed consent letter which included a brief

description of the study and plan for data collection and use and outlined measures to ensure anonymity and confidentiality when appropriate (Stake, 1995; Appendix C). Upon request, participating instructors were provided with the extended plans for the study.

Bounding the Study

Case studies are defined, or bounded, by parameters that guide and direct data collection and analysis (Merriam, 1998). Studies can be bounded by setting, participant samples, and length of data collection (Merriam, 1998). This study was bounded by sample size, setting, and participant selection.

Sampling. Purposive sampling, also referred to in the literature as purposeful sampling, was used to determine the sample sizes that bound the study (Creswell, 2014; Merriam, 1998). Purposive sampling is a nonprobability sample where a researcher selects cases, sites, and participants based on the premise that the chosen sample will provide insight and understanding of the phenomenon (Merriam, 1998). In case studies, it is expected that researchers will employ two levels of sample selection. Types of purposive sampling include typical, unique, maximum variation, convenience, and snowball sampling (Merriam, 1998). For this case study, the researcher used typical and maximum variation sampling techniques.

Typical sampling is a strategy used to collect data that "reflects the average person, situation, or instance of the phenomenon of interest" (Merriam, 1998, p. 67). In this case, typical sampling was used to identify the semester, sections of the course, and instructors included in the study. The researcher collected data from instructors and their corresponding courses during the fall 2017 semester. This sample included five 16-week sections of the course, which reflects an average occurrence of the phenomenon. The

researcher's section of the course and the 8-week mini-mester section were excluded from the study.

Maximum variation sampling is a strategy that involves collecting diverse variations in the data sets, which allows the researcher to identify themes, patterns, and multiple perspectives (Creswell, 1998). In this case, maximum variation sampling was used to select samples of instructor feedback and student responses to feedback from each participating section of the course. The process of maximum variation sampling is discussed further in this chapter.

Setting. The setting for this study was an online information literacy course taught at a private, doctoral university. The course, LIB 301, is taught in fall/spring 16-week semesters and fall/summer/spring 8-week semesters; the accelerated 8-week semesters are referred to as mini-mesters. Enrollment in the course is limited to adult undergraduate students in the university's DCP. A more in-depth analysis of student participants is provided later in the chapter. The course is a one credit hour, required general education course and has been taught consecutively each semester by faculty librarians since 2012. LIB 301 is Quality Matters certified. Quality Matters is a nonprofit organization that promotes the improvement of online education through accessible course design and alignment of learning outcomes and assessments. Certified courses participate in an external peer review process following the Quality Matters rubric. Courses must meet certain course design criteria and alignment standards, including but not limited to the following: timeline for providing feedback to students, response time from instructors, and alignment of each assignment to measurable student learning outcomes.

LIB 301 uses a formative curriculum design that purposefully engages students

and instructors in a series of feedback loops throughout the semester. Modules and assignments are scaffolded and paced to allow students time to engage in the feedback process without falling behind in the course. Content modules introduce students to new information literacy concepts and skills. Assessments include a variety of reflection, practice, and application assignments. Reflection journals allow students to practice elaboration and provide an opportunity for instructors to proactively identify potential barriers to learning. Reflective journaling is also an opportunity for students to provide their own feedback on the feedback they receive from instructors; this experience allows instructors to identify weaknesses and strengths in their feedback style and make improvements accordingly.

PS assignments are designed for students to transfer concepts and skills learned across multiple modules. Students are tasked with locating an assigned information source type that assists them with answering their research question. They, then must create an APA citation and evaluate the source according to a source evaluation guideline (Appendix D). Students complete five formative PS assignments that eventually lead to the summative annotated bibliography assessment. Instructors provide formative feedback for each student, but students are allowed to choose their level of participation in the formative process. Feedback is provided both through a rubric and instructor comments. Students are allowed to resubmit PS assignments as many times as needed in order to master concepts and skills.

Participants. Participants in the study are assigned into two categories: instructors and students. Instructors are librarians with faculty status and rank of assistant professor at the institution where LIB 301 is taught. LIB 301 instructors must hold a master's in LIS from an ALA accredited institution. Prior to teaching LIB 301, all

instructors must be certified to use the learning management system by the institution's

Department of Digital Learning. Instructors invited to participate in the study have

experience teaching the course for two or more semesters. Prior to the beginning of each

semester, instructors participate in a course management workshop where changes to the

course, Instructional strategies, and course management strategies are reviewed and

discussed. Instructors also participated in a site-hosted community of professional

learning focusing on the new ACRL Framework, formative assessment practices, and

Dweck's (2006) theory of the Growth Mindset prior to the study.

Student participants in the study are undergraduate adult students enrolled in the

fall 2017 semester of the institution's DCP. Students enrolled in DCP are nontraditional,

adult learners. The institution's 2016 analysis of students enrolled in DCP reported that

73% of DCP students are women and 29% of the total DCP population are classified as

minorities. The average age for DCP students is 35 with a range of 19 to 68 years of age.

The University's 2016 administration of the National Survey for Student Engagement

revealed that 84% of DCP student respondents reported that neither parent completed a

bachelor's degree, making the majority of students in the program first generation college

students.

Data Collection

Qualitative research is emergent by design; therefore, collection of data should be

flexible and "responsive to change" (Merriam, 1998, p. 8). Data collected in a case study

should be triangulated to the point of saturation in order to support conclusions derived

from the case (Creswell, 2014; Merriam, 1998). Triangulation is "the convergence of

data collected from different sources, to determine the consistency of a finding" (Yin,

2014, p. 241). Saturation is collecting data to the extent that "gathering fresh data no

longer sparks new insights or reveals new properties" (Creswell, 2014, p. 189). Collected

data can be organized in arrays, broad categories of collected data, and data sets, smaller

units of analyzed data (Yin, 2014). This study collected the following arrays of data:

student reflection journals, open-ended instructor questionnaire, and samples of instructor

feedback.

Document analysis is the data collection procedure used in this case study. This

process primarily consists of collecting documents that were produced for a purpose other

than the study being conducted (Merriam, 1998). Researchers have variant definitions

for what constitutes document analysis in qualitative research. Yin (2014) limited

document analysis to the collection and study of specific forms of documents, while

Merriam (1998) used documentation as a blanket term for any form of documented data

other than interviews or observation. This study uses Merriam's (1998) definition of

document analysis to cover each of the three data arrays collected.

Strengths of document analysis include the lack of influence on participants by

any intrusion posed by the researcher at the study site (Merriam, 1998; Yin, 2014). Since

researcher influence is negated, documents produced at the site under study remain stable

and consistent (Merriam, 1998; Yin, 2014). This stability impacts the reliability of the

study as documentation can be replicated and collected for future study. Disadvantages

of this method include issues of bias and authenticity (Merriam, 1998; Yin, 2014).

Researchers must be transparent about the conditions under which the documents have

been produced and collected, addressing how those conditions could reveal or hide

perceptual bias (Merriam, 1998).

Data Array 1: Feedback samples. Feedback samples were collected to gain

insight into the types of feedback that occur within the course. The purpose of instructor

feedback is to assist students in growing in the liminal space and making transfer

connections. Two weeks before the start of the semester under study, instructors

participated in a workshop on providing feedback that fosters a growth mindset rather

than Ability Praise (Dweck, 2006). The researcher anticipated that feedback would

contain some bias, as it is a reflection of each instructor's interpretation of improvement

in context to the assignment's grading rubric (Appendix E). Feedback samples were

collected from the Practice Segment 1 (PS1) and Practice Segment 3 (PS3) assignments.

PS1 is the first mid-stakes formative assessment students complete where they are

required to combine information literacy concepts and skills. PS1 also represents most

students' first experience writing an evaluative annotation and creating an APA citation

for a source. By PS3, it is expected that students will have gained a certain degree of

comfort with the process of writing an evaluative annotation but may still be challenged

with locating and evaluating a more advanced and nuanced source type. In collecting

feedback samples from both PS1 and PS3, the researcher worked to determine whether or

not the type of feedback given to students changes as the semester progresses or remains

the same.

Instructor feedback samples were collected from the 30 selected student

participants from Data Array 1. Sample collection included both initial feedback on the

assignment as well as follow-up feedback as a student voluntarily engaged in the

feedback loop. The researcher collected a total of 63 feedback samples from PS1 and 57

feedback samples from PS3. Thirty feedback samples represent the initial feedback

provided to the student, while 33 and 27 samples, from PS1 and PS3 respectively

represent subsequent iterations of feedback provided to the student. An emergent

limitation of this data set is the unanticipated use of PDF documents to provide more

detailed feedback to students; these PDF documents are not accessible to the researcher

due to the functionality of the learning management system. Since the pool of student

participants was anonymized, the researcher was unable to request access to the PDF

documents without compromising student anonymity. Anonymity of the student

candidates to participating instructors was a critical validity measure of the study as it

protected the authenticity of the feedback samples. Analysis of this data array and

emerging data sets are discussed in the Data Analysis section.

Data Array 2: Student reflection journals. Student reflection journals were

collected to gain insight to student perceptions on their Feedback Reaction, where

stuckness occurs in their learning, and what influences their growth in the liminal space.

Students in the LIB 301 course are assigned reflection journals to begin the process of

engaging them in the feedback loop through reflective writing. This reflexivity is

designed to push students to process their experiences when engaging with and applying

content to new or modified learning situations. Students are asked to process forward

and elaborate on how feedback on the current assignment might be applied to future

assignments, thus laying the initial groundwork for transfer to occur. Through reflection

journals, students are asked to provide feedback to instructors on the feedback process.

This student-generated feedback is designed to assist instructors in differentiating

feedback and completing the feedback loop. The researcher anticipated that a degree of

bias may exist in the reflection journals as the assignment is graded and not anonymous.

Students are asked to share perceptual beliefs that may not be rooted in facts.

Data were collected from the Module 5 and Final Reflection Journals (Appendix

F). The Module 5 Reflection Journal occurs after PS1 feedback, the first mid-stake

assessment in the course, has been provided. Students reflect on the feedback process

allowing instructors an opportunity to audit their feedback style at an optimal point in the semester. The Final Reflection Journal assignment is a summative reflection of the feedback process at the conclusion of the semester. This reflection is a reflexive exercise designed to anchor the liminal growth the student may have made and process transfer connections made during the course.

Permission to collect Module 5 and Final Reflection journal entries was secured from each instructor participating in the study. Samples were collected from six randomly selected students who met eligibility requirements in participating sections of the course. Eligible students are defined as students who completed the following assignments in the course: PS1, Module 5 Reflection Journal, PS3, and the Final Reflection Journal. Eligible students were listed by course section and numbered in a spreadsheet with six participants selected from each section using a random number generator. This provided a saturation point of 30 students and 60 total reflection journal entries. Analysis of this data array and the resulting data sets are discussed in Data Analysis.

Data Array 3: Online, open-ended questionnaire. Participating instructors completed an online, open-ended questionnaire (Appendix G). The questionnaire was designed to collect perceptual data from instructors on feedback style, purpose of feedback, perceptions of stuck places, and relationship between feedback and transfer of learning as it relates to information literacy. The questionnaire was used to investigate instructor perceptions regarding whether the feedback process has an impact on transfer. The decision to use the online, open-ended questionnaire is derived from the researcher's prior data collection experiences with the participant population in an unrelated study. As an insider, the researcher was aware that participating instructors preferred to have

adequate time to reflect on questions and process responses. This practice, conducted

through the online questionnaire, aligns with Black et al.'s (2003) research on providing

wait time to respondents in order to generate confident, rich, and explanatory responses.

Personal bias is expected in the questionnaire responses with the understanding that

responses may be influenced by the participants' relationship with the researcher. To

protect participant anonymity and to mitigate relational influence, the questionnaire was

administered anonymously through a Google Form.

Questionnaire design consisted of eight required, open-ended items designed to

yield insight on how the stakeholder community perceives the process and impact of

feedback (Yin, 2014). Items one through four were modified, with permission, from

Bennett's (2016) questionnaire on teacher perceptions of the impact of feedback in an

Academically Gifted and Intellectually Gifted education setting (Appendix H). Items

five through eight were created by the researcher and were validated through peer

debriefing to ensure that questions were not leading and avoided assumption and bias

(Merriam, 1998; Yin, 2014).

Data Analysis

Qualitative research requires triangulated data collection from a variety of sources

to assure consistency and reliability in data findings. Perceptual data collected for this

study were triangulated with samples of instructor feedback in order to analyze

perceptions against what actually occurred in the course. The researcher used these data

to confirm the type of feedback taking place in order to adequately understand instructor

and student perceptions of the feedback process and how they might impact transfer and

growth in the liminal space. A combination of a priori and open coding was used to

analyze the three Data Arrays. This process assigned categories and themes to data

aiding in interpretation of the constructs that emerged in the data (Creswell, 1998;

Merriam, 1998). In qualitative analysis, a researcher creates or adopts a set of codes with

the understanding that new codes may emerge or existing codes may be eliminated as

data are codified and meaningful patterns identified (Merriam, 1998; Yin, 2014). The

researcher collaborated with an internal and external code-checker to review code

applications in each data array for inter-coder agreement. Data sets generated from each

array were used to analyze the collective feedback provided by the participant group as a

whole and separated by assignment. The following sections outline how the research

questions of this study were answered through data analysis. Table 5 demonstrates the

alignment between each research question, instrumentation, and theoretical framework.

Triangulated data analysis for each research question is described in detail in the next

section.

Table 5

Research Question, Instrumentation, Theoretical Framework Alignment

	Instrumentation	Analysis	Theoretical Framework Alignment
RQ1	Instructor feedback samples Student Reflection Journals Open-ended, online questionnaire	Identify the types of feedback occurring in the course. Observe the frequency of feedback types that align with supporting a growth mindset and transfer of learning. Compare feedback types to instructors' self-reported feedback styles and student-identified stuck places.	Evaluation of the frequency of feedback types provides additional insight into instructor and student perceptions of growth in the liminal space.
RQ2	Student Reflection Journals Instructor feedback samples	Analyze reflection journal in context to instructor feedback samples. Compare with the type of feedback that occurs within the course and look for correlations and disconnects.	Triangulation provides insight to how instructor feedback meets or does not meet the needs of students as they process through the liminal space.
RQ3	Open-ended, online questionnaire Instructor feedback samples Student Reflection Journals	Analyze questionnaire responses in context to instructor feedback samples. Triangulation provides insight to how instructors perceive the type and influence of the feedback they provide as it relates to actual feedback occurrences in the course. Compare instructor perception to student perception of stuck places.	Evaluation of these perceptions reveal micro-philosophies that instructors hold toward growth in the liminal space and concept mastery.

Research Question 1: What types of feedback occur in an online information literacy course for adult undergraduate students? Research Question 1 was answered using the first data array, Instructor Feedback Samples. Samples were coded using an

adapted set of codes adopted from Bennett's (2016) study on the impact of written

feedback in an advanced placement classroom setting. The researcher modified code

descriptions to meet the needs of the site and participants under study (Appendix H).

These a priori codes served as the codebook used in the inter-coder agreement and cross-

checking process (Creswell, 2014). Feedback samples were organized in a spreadsheet

by course section and student participant with the names of each withdrawn and replaced

with a randomized alpha-numeric system. Samples were hand coded with the code

applied for each iteration of a code within the sample.

Research Question 2: What perceptions do adult undergraduate students hold

regarding how feedback impacts their growth in the liminal space? Research Question

2 was answered using data collected from student reflection journals triangulated with

instructor feedback samples. Reflection journals were organized in a spreadsheet using

the same alpha-numeric schematic as the instructor feedback samples. Open coding was

used to identify themes pertaining to student beliefs on what influences growth in the

liminal space. While the role of feedback on liminal growth was an established theme,

other themes emerged to create a richer landscape of what influences growth. Student

perceptions were analyzed contextually to the data sets generated from instructor

feedback.

Research Question 3: How do instructors describe their feedback style and

beliefs regarding the role of feedback on the ability to transfer learning and growth in

the liminal space? Research Question 3 was answered using data collected from the

instructor questionnaire triangulated with instructor feedback samples. Responses to the

questionnaire are anonymous, which prevents an alignment between responses and

specific feedback samples. Questionnaire responses were analyzed contextually against

data sets of the combined feedback samples and PS1/PS3 specific samples to determine if perceptions and occurrences of feedback are congruent. Open coding was used to identify emerging themes regarding instructor perceptions of feedback. The codebook generated through open coding and code applications was evaluated by the internal and external code checker.

Summary

The purpose of this chapter was to describe the methodology used by the researcher to collect and analyze data. The role of the researcher as an insider researcher, the measures taken to ensure validity and reliability of the study, and the steps taken for data collection and analysis were outlined. An in-depth analysis of the collected data is described in Chapter 4. Responses to triangulated data are described in Chapter 5.

Chapter 4: Findings

Introduction

Many factors influence student growth in the liminal space. This qualitative case study investigated how the feedback process might influence liminal growth. Growth in the liminal space is perceptual; therefore, data collected in this study focused on perceptions of growth, learning, and ability to transfer. Student participants were adult undergraduates enrolled in an online information literacy course in DCP. Participants in the study were purposefully selected faculty librarians teaching sections of an online information literacy course and 30 randomly selected student participants from these sections.

Research Questions

The research questions for this study were designed to gain insight into student and instructor perceptions of growth in the liminal space and the degree to which transfer of learning is influenced by the feedback loop. The following research questions were explored.

1. What types of feedback occur in an online information literacy course for adult undergraduate students?

2. What perceptions do adult undergraduate students hold regarding how feedback influences their growth in the liminal space?

3. How do instructors describe their feedback style and beliefs regarding the role of feedback on the ability to transfer learning and growth in the liminal space?

Research questions were answered through a triangulation of data collected through three data arrays. Each data array is reported below as a unique data point leading up to the triangulated data as it aligns to each research question. Table 6 summarizes the analysis

of data in context to the research questions of the study.

Table 6

Research Question, Instrumentation, Theoretical Framework Alignment

	Instrumentation	Analysis	Theoretical Framework Alignment
RQ1	Instructor feedback samples Student Reflection Journals Open-ended, online questionnaire	Identify the types of feedback occurring in the course. Observe the frequency of feedback types that align with supporting a growth mindset and transfer of learning. Compare feedback types to instructors' self-reported feedback styles and student-identified stuck places.	Evaluation of the frequency of feedback types provides additional insight into instructor and student perceptions of growth in the liminal space.
RQ2	Student Reflection Journals Instructor feedback samples	Analyze reflection journal in context to instructor feedback samples. Compare with the type of feedback that occurs within the course and look for correlations and disconnects.	Triangulation provides insight to how instructor feedback meets or does not meet the needs of students as they process through the liminal space.
RQ3	Open-ended, online questionnaire Instructor feedback samples Student Reflection Journals	Analyze questionnaire responses in context to instructor feedback samples. Triangulation provides insight to how instructors perceive the type and influence of the feedback they provide as it relates to actual feedback occurrences in the course. Compare instructor perception to student perception of stuck places.	Evaluation of these perceptions reveal micro-philosophies that instructors hold toward growth in the liminal space and concept mastery.

Chapter Organization

This chapter first summarizes each data array in order to provide a broad picture

of the information collected and then reports triangulated data aligned to each research

question. Descriptive statistics of assignments, resubmission rates, and grade distribution

provides generalized data on student improvement throughout the course. Data arrays

provide a snapshot of each data point as independent units. Data Array 1 summarizes

perceptual data collected from student reflection journals; Data Array 2 identifies occurrences of feedback types collected from feedback samples; and Data Array 3 summarizes perceptual data collected from an instructor questionnaire.

Descriptive Statistics

Data were collected from 30 randomly selected students enrolled in multiple sections of an online, information literacy course during the fall 2017 semester. Feedback samples, student reflection journals, resubmission rates, and initial/final grades were collected from the course for each student participant. It is important to note that numerical grade data were not used as a measure of liminal growth in this study; it does, however, provide an indication that the student made an improvement to submitted assignments based on the feedback given them by their instructor.

PS1. PS1 was a mid-stake assessment requiring students to combine and apply multiple concepts and skills from the first four learning modules in the course. For the assignment, students had to locate a reference source pertaining to their research question, write an evaluative annotation, and create an APA citation for the source. PS1 assignments were evaluated using a standard rubric and graded using a points-based system with 50 points as the highest attainable score. Instructors encouraged students to participate in the feedback loop by making improvements to and resubmitting the assignments. It was a student's choice to engage in the process. Table 7 shows the collected data from PS1.

Table 7

Initial and Final Grades for Students on PS1

Student	PS1 Initial Grade	Resubmit	PS1 Final Grade	Change
1.a	35	Yes	42	+7
1.b	22	No	22	NA
1.c	47	Yes	50	+3
1.d	45	Yes	49	+4
1.e	0	Yes	46	+46
2.a	49	No	49	NA
2.b	50	No	50	NA
2.c	29	No	29	NA
2.d	49	Yes	50	+1
2.e	49	No	49	NA
3.a	50	No	50	NA
3.b	19	No	19	NA
3.c	0	Yes	46	+46
3.d	27	Yes	50	+23
3.e	0	Yes	46	+46
4.a	45	No	45	NA
4.b	48	No	48	NA
4.c	47	Yes	50	+3
4.d	47	Yes	50	+3
4.e	0	Yes	45	+45
5.a	43	Yes	50	+7
5.b	25	Yes	48	+23
5.c	0	No	0	NA
5.d	49	Yes	50	+1
5.e	10	Yes	45	+35
6.a	38	No	38	NA
6.b	43	No	43	NA
6.c	0	Yes	50	+50
6.d	50	No	50	NA
6.e	45	No	45	NA

Sixty percent of student participants engaged in the feedback loop, while 10% of initial submissions met assignment standards. Comparing initial and final scores for the 60% who engaged in the feedback loop, 89% of those students made an improvement to their submission. Six students, 20%, scored a zero on their initial attempt. Five of the six submitted the assignment with an incorrect source type, and one student had a submission

error.

PS3. PS3 occurred 4 weeks after PS1 and required students to locate a scholarly

article pertaining to their research question, to write an evaluative annotation, and to

create an APA citation for that source. Table 8 outlines data collected from PS3.

Table 8

Initial and Final Grades for Students on PS3

Student	PS3 Initial Grade	Resubmit	PS3 Final Grade	Change
1.a	0	Yes	46	+46
1.b	0	Yes	25	+25
1.c	48	Yes	49	+1
1.d	39	Yes	50	+11
1.e	49	No	49	NA
2.a	50	No	50	NA
2.b	50	No	50	NA
2.c	38	No	38	NA
2.d	48	No	48	NA
2.e	0	Yes	50	+50
3.a	44	Yes	50	+6
3.b	0	Yes	40	+40
3.c	0	Yes	48	+48
3.d	47	Yes	50	+3
3.e	47	No	47	NA
4.a	46	No	46	NA
4.b	0	Yes	50	+50
4.c	46	Yes	50	+4
4.d	45	Yes	49	+4
4.e	49	No	49	NA
5.a	48	Yes	50	+2
5.b	0	Yes	48	+48
5.c	38	No	38	NA
5.d	48	Yes	48	+0
5.e	0	Yes	50	+50
6.a	35	No	35	NA
6.b	48	No	48	NA
6.c	0	Yes	50	+50
6.d	42	No	42	NA
6.e	47	No	47	NA

Fifty-seven percent of student participants engaged in the feedback loop, while

6% of initial submissions met assignment standards. Comparing initial and final scores for the 57% who engaged in the feedback loop, 94% of those students made an improvement to their submission. Six students, 20%, scored a zero on their initial attempt; three students, 10%, submitted with an incorrect source type; five students, 17%, had a submission error; and one student, 3%, plagiarized.

Data Array 1: Feedback Samples

In assessing the potential impact of feedback on student learning, Hattie and Timperley (2007) encouraged collecting feedback over an extended period to capture how students respond to feedback as their stage of learning changes. Instructor feedback samples were collected at two strategic points in the semester. PS1 samples represent the first feedback loop iteration that students and instructors engaged in on a mid-stake assessment. PS3 feedback samples represent established trends in feedback/response between instructors and students on mid-stake assessments. Sixty-one feedback samples from instructors for PS1 and 54 feedback samples for PS3 were collected during the course of this study. Limitations of this data array include lack of access to some feedback provided in embedded PDF files, through email, by phone, or through face-to-face appointments.

Analysis of feedback samples was conducted with two codebooks: a Feedback Type Codebook and a Feedback Content Codebook. The Feedback Type Codebook was a set of a priori codes adapted from Bennett's (2016) feedback codebook and described the type of feedback given by instructors. The Feedback Content Codebook used open coding to develop thematic codes to identify and analyze the content upon which students needed to improve.

Feedback codebook. The Feedback Codebook contained 10 codes that described

the type of feedback provided to students. Types of feedback were broadly categorized into two root codes: Specific and General. Specific feedback described instances when instructors indicated what was done correctly or needed improvement, provided praise or additional instruction, or asked probing questions. General feedback provided a grade or evaluation with no clear action steps for improvement. This type of feedback focused on evaluation, praise, and indication of errors. Table 9 displays the codes categorized under the Specific and General root codes.

Table 9

Codes in the Specific and General Feedback Categories

Feedback Categories	
Specific Codes	General Codes
Descriptive	Ability Praise
Effort Praise	Error Indication
Instructional	Evaluation
Question	Notation
Correction	Non-Comment

Codes were applied to each unique iteration of a theme within a feedback sample. For example, one instructor stated, "Italicize the source title and place in sentence case. Then use TRAP to evaluate this source. How is this source useful for your research?" For this sample, the Instructional and Error Indication codes were applied. A specific pathway was provided to improve source evaluation, yet no pathway was offered to improve grammatical errors. Table 10 defines each feedback code and provides a description and example of specific and general feedback codes used in the study.

Table 10

Description and Examples for Specific and General Feedback Codes

Feedback Code	Description	Example
Ability Praise	Instructor praised student for ability (may or may not be related to the task).	"Good;" "Great job!"
Correction	Instructor made a correction to grammar, mechanics, citations, or formatting in the student work.	Correcting capitalization in an APA citation, grammatical errors in the annotation, and incorrect document formatting.
Descriptive	Instructor give specific feedback about what the student did well, what the student needed to work on, and/or what steps the student may need to take in order to improve.	"Good concise summary of the article;" "When addressing the timeliness of the source, you must evaluate the date of the publication rather than simply stating the date. Is the source too old or does it have historical significance?"
Effort Praise	Instructor praised student work while providing context to why praise was given.	"I like how you have identified the bias in this article and determined how that bias can be used to answer your research question."
Error Indication	Instructor pointed out an error without providing Instructional/corrective pathway for improvement.	"APA citation is not correct;" "You have not addressed the reliability of the source."
Evaluation	Instructor evaluated student work based on a perceived level of performance on the task; indicating that student work meets the standard.	"Excellent evaluation of the source!"
Instructional	Instructor provided specific feedback intended to guide/instruct the student (may or may not be related to the task.)	"Use the APA Citation Guide and follow the checklist to correct the capitalization in your citation;" "Provide examples for why this source is reliable to support your evaluation."
Notation	Instructor requests or encourages the student to resubmit the assignment or to schedule a one-on-one meeting for deeper instruction.	"Please make changes and resubmit."
Non-Comment	Feedback was not provided to the student.	
Question	Instructor asked student a question related to the task.	"What evidence do you have to support this claim?"

Feedback samples contained a mix of specific and general feedback, with Specific

Feedback making up the majority of the feedback provided. PS1, with 287-Root Code

applications, contains 57% Specific Feedback code applications; and PS 3, with 251-Root

Code applications, contains 63% Specific Feedback code applications. This information

is displayed in Figure 3.
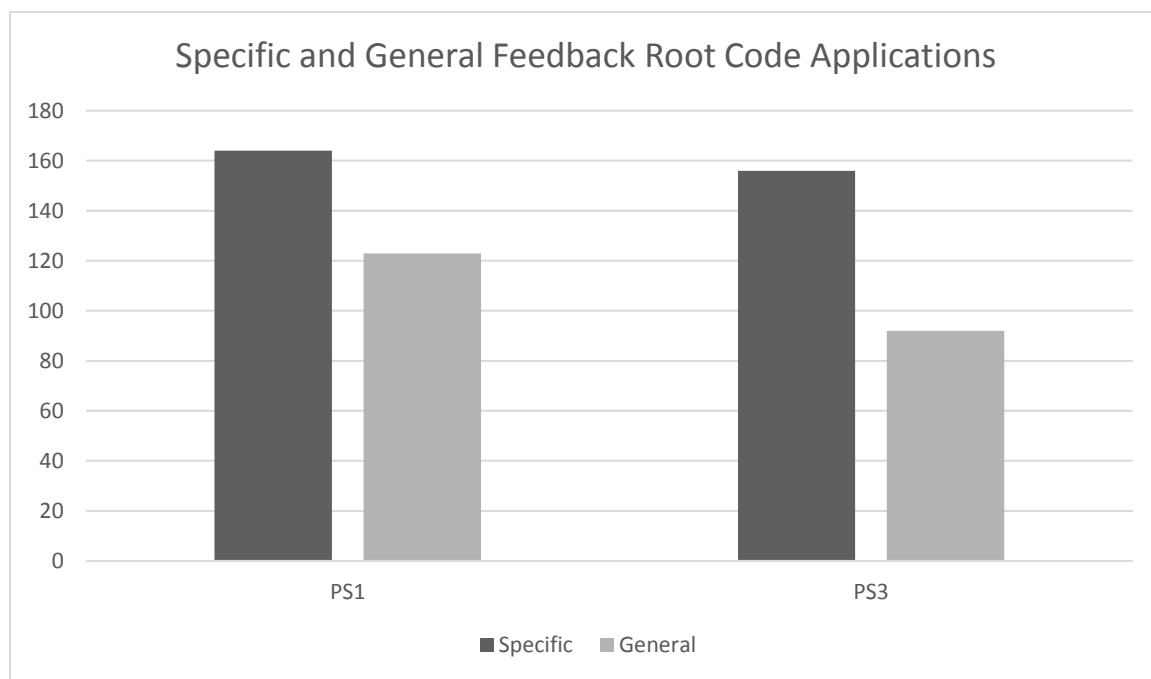
Figure 3. Specific and General Feedback Root Code Applications.

Specific feedback. Specific codes described feedback with instruction and

context that supported student learning. Codes applied under this root code were

Descriptive, Effort Praise, Instructional, Question, and Correction. Codes were applied to

each unique iteration within a feedback sample.

Descriptive feedback. Descriptive feedback "[gives] students [the] information

they need so they can understand where they are in their learning and what to do next"

(Brookhart, 2008, p. 2). Applications of the Descriptive code co-occurred with Effort

Praise, Instructional, Correction, and Question codes. Instances of co-occurrence

provided students with deeper contextual understanding for why a task was done

correctly or needed improvement. For example, the Description and Effort Praise codes were applied to the feedback given by Instructor E:

> I would shorten this annotation before using it in the annotated bibliography. You do not need to include the warning signs of alcohol abuse except in a short, general way. Keep the parts where you addressed the evaluation questions from TRAP. You did that very well. I especially liked the way you acknowledged that the article had been written for this specific audience.

Effort praise. Effort Praise was applied when the instructor praised student work, providing specific context for why the praise was given. This style of praise indicated to students what they did correctly and why. One instructor stated, "Your annotation was well written and you included many of the TRAP evaluation questions. I especially liked how you explained how this particular article met your research needs." The focus of the praise shifts from intelligence or ability to process and growth (Dweck, 2007; Hattie & Timperley, 2007).

Instructional feedback. Instructional feedback incorporated instructional aides that assist students in understanding and executing an improvement. This type of feedback offered an improvement strategy rather than an exact correction to the mistake (Brookhart, 2008). For example, one instructor stated, "Your hanging indent is opposite of what it should be. Take a look at the video on how to do hanging indents in Microsoft Word under the 'Video Tutorials' link." Videos, infographics, and guides are open-access resources created by the library to scaffold students through levels of understanding a concept or applying a skill.

Correction feedback. Correction feedback focused on supplying exact correction on grammar, mechanics, citations, and formatting. For example, one instructor stated,

"Citation: In the article title, only capitalize Knowledge and U.S. (Only capitalize the first word and proper nouns). Be sure to italicize the journal title and the volume number, 37." Although Bennett (2016) categorized the correction code under the General root code, this study categorized Correction as a Specific code, since instructor corrective feedback was highly detailed and offered students a pathway to improvement. Corrective feedback represented 30% of the feedback provided to students as opposed to Instructional which represented 20% of the total. The relationship between the Correction and Instructional codes in context to the liminal space is addressed in the section reporting data as they relate to Research Question 1.

   Question feedback. Question-focused feedback occurred when instructors prompted critical thinking by asking probing questions about the task. This style of feedback prompted students to consider a concept further or an alternative point of view in an effort to deepen their understanding. For example, one instructor stated, "Good job, [student name]. Tell me a little more about the author. Who is this person and what are his/her credentials in this field?" Question code applications increased by 18 iterations between PS1 and PS3; however, seven iterations occurred in a single feedback sample where the instructor used questioning feedback to address seven separate areas of needed improvement in the submission. As an outlier sample, this data point skewed the data for this code and should not be misinterpreted as a broad increase of questioning feedback in the course. Table 11 displays the number of times a particular type of Specific feedback was recorded.

Table 11

Code Applications Within the Specific Feedback Root Code

Code	Description	PS1	PS3
Descriptive	Instructor gave specific feedback about what the student did well, what the student needed to work on, and/or what steps the student may need to take in order to improve.	37	33
Effort Praise	Instructor praised student work while providing context to why praise was given.	34	22
Instructional	Instructor provided specific feedback intended to guide/instruct the student (may or may not be related to the task.)	38	28
Correction	Instructor made a correction to grammar, mechanics, citations, or formatting in the student work.	46	46
Question	Instructor asked student a question related to the task.	9	27
Total		164	156

General feedback. General codes described feedback that did not provide clear action steps for improvement. Codes applied under this root code included Ability Praise, Error Indication, Evaluation, Notation, and Non-Comment. Codes were applied to each unique iteration within a feedback sample.

Ability praise. Ability Praise was applied when instructors offered generic praise to students without identifying why praise was provided. For example, an instructor might have stated, "Good job on your annotation," without supportive context. There was a high rate of co-occurrence between Ability Praise and Evaluation as a summative indication that student work had met the standard for the assignment.

Error indication. Error Indication feedback called attention to errors in student

work without offering a specific pathway to improvement. For example, one instructor stated, "Make sure you proof one more time to get out any grammatical errors."

Evaluation. Evaluation feedback indicated that the student met the standard and no longer needed to participate in the feedback process for the assignment. For example, one instructor stated, "Excellent job, [student name]" as a final comment on the student's third resubmission. Application of this code occurred as a summative statement once students met assignment standards. In cases where students engaged in the feedback loop, evaluation statements preceded or followed descriptive feedback at the conclusion of a series of feedback interactions. By combining evaluative statements with descriptive content within or prior to an evaluation, instructors participating in the study were utilizing evaluation as an indicator of success and achievement.

Notation. Notation indicated a request or encouragement to resubmit an assignment with improvements or to contact the instructor for one-on-one instruction to discuss improvements. For example, one instructor stated, "Feel free to resubmit and I'll keep giving feedback until its perfect." Bennett's (2016) study utilized this code to indicate symbolic Notations, such as a check mark or smiley face, on hard copies of assignments in a face-to-face environment. For this fully online environment, symbolic notations were substituted with request statements from the instructors. Notations were categorized as General feedback statements as they did not include content specific instruction statements. Some Notation applications concluded a series of specific feedback statements. Requests for one-on-one appointments often indicated a serious error in the student work or a lack of understanding the assignment. For example, one instructor stated, "Please call me [phone number] or the Reference Desk [phone number] and we will walk you through the process." These iterations of Notation often lacked

specific detail as the instructor had chosen to explain the errors and provide context in an environment where the student could ask questions and clarify their understanding in real time. Table 12 displays the number of times a particular type of General feedback was recorded.

Table 12

Code Applications Within the General Feedback Root Code

Code	Description	PS1	PS3
Ability Praise	Instructor praised student for ability (may or may not be related to the task).	23	19
Error Indication	Instructor pointed out an error without providing Instructional/corrective pathway for improvement.	41	19
Evaluation	Instructor evaluated student work based on a perceived level of performance on the task; indicating that student work meets the standard.	15	15
Notation	Instructor requested or encouraged the student to resubmit the assignment or to schedule a one-on-one meeting for deeper instruction.	24	22
Total		103	75

Feedback Content Codebook. The feedback Content Codebook contained eight codes that identified the content of the feedback provided as opposed to how the feedback was delivered. Open coding was used to identify common themes relating to errors and areas of improvement. Content code applications represented each single occurrence of a theme within a sample. For example, if an instructor indicated multiple errors with a single APA citation, the Citation code would only be applied once for the sample.

Content codes were broadly categorized as skills-based or concept-based errors.

Skills-based content identified concrete tasks where the task could be executed correctly or incorrectly. Examples included creating an APA citation and using correct grammar. Concept-based content identified tasks where students were asked to demonstrate their knowledge and ability by combining ideas through practice and/or writing. Examples included researching a topic, locating a particular source type, evaluating a source, and writing an annotation. Table 13 displays the codes categorized under the Skills-based and Concept-based root codes.

Table 13

Codes in the Feedback Content Categories

Content Categories	
Skills-based	Concept-based
Citation	Evaluation
Grammar/Formatting	Source Type
Missing Element	Annotation
Submission Error	Plagiarism

Although it might be considered skills based, for this study, Source Type was categorized as concept based. In locating an assigned source type, students had to develop a research strategy, select relevant keywords, and locate a specified source type to help answer their research question. By selecting an incorrect type of source, students demonstrated a gap in their conceptual understanding or an inability to apply multiple concepts outside of the original learning experience. Table 14 displays the number of applications for skills-based and concept-based codes in PS1 and PS3.

Table 14

Description and Number of Applications for Skills-based and Concept-based Content Codes

Code	Description	PS1	PS3
Citation	Instructor indicated improvement was needed with the student's APA Citation.	42	41
Grammar/Formatting	Instructor indicated improvement was needed with the student's grammar and/or formatting.	23	15
Evaluation	Instructor indicated improvement was needed with the student's TRAP evaluation of the source.	14	32
Source Type	Instructor indicated that the student submitted the incorrect source type for the assignment.	9	7
Annotation	Instructor indicated that the student provided too much summary with little, to no evaluation of the source in the annotation.	5	8
Missing Element	Instructor indicated that the student was missing a required element of the assignment.	5	2
Submission Error	Instructor indicated that an error in student submission of the assignment.	4	6
Plagiarism	Instructor indicated that the student plagiarized part or all of their annotation.	1	2
Total		103	113

Feedback samples contained a mixture of skills-based and concept-based feedback, with skills-based feedback making up 64% of total feedback provided. Citation focused feedback made up 38% of the total content code applications, ranking highest in application in both PS1 and PS3. Source evaluation made up 21% of the total

content code applications. The rate of application increased between PS1 and PS3. Triangulated analysis of content code applications, as related to specific research questions, is addressed later in this chapter.

Data Array 2: Student Reflection Journals

Providing effective feedback is a powerful mechanism to support learning, but often students are uncertain how to apply feedback constructively (Brookhart, 2008; Shafi, Hatley, Middleton, Millican, & Templeton, 2017). Students with a fixed mindset may interpret the meaning of feedback as judgment or confirmation that they lack the ability to succeed (Dweck, 2007). To combat this mindset, instructors should engineer opportunities for students to use and apply feedback, fostering a mindset of practice, growth, and improvement (Brookhart, 2008; Dweck, 2007). In LIB 301, students participated in reflective journaling, processing their reaction to the feedback and how they planned to utilize the feedback going forward.

Reflection journals were collected at two strategic points in the semester: Module 5 and the Final. Module 5 occurred after PS1. This reflection was focused on initial feedback and "feed forward" strategies. The Final occurred after the summative annotated bibliography, and this reflection focused on the semester's feedback experience. Evaluating data collected from these strategic points allowed for a comparison of student initial impressions to their overall experience.

Reflection journals were an established reflexive assessment. For this study, two questions were added to gather perceptual data on conceptual threshold entry points and the role of feedback in the liminal space. The first question focused on entryways into the liminal space, identifying when students stepped into a conceptual gateway and engaged with troublesome knowledge. Students were also asked to identify potential

influences on growth and transfer of learning in this space. The two questions added to the reflection were

> Module 5: While working through PS1, did you ever feel stuck in the process of working on the assignment? If so, where did you get stuck and what helped you get unstuck?

> Final: Were there times during the semester where you felt stuck? If so, what helped you get unstuck?

> To translate the concept of liminality to students, the researcher used the term "stuck" to indicate moments of challenge and anxiety. The second question added to the reflection journals focused on student perceptions of feedback received from instructors. Module 5 previously contained a feed forward question that asked students to describe how they would use instructor feedback to improve on future assignments. To create an alignment to data collected in Module 5, the same question was added to the Final reflection journal with modifications.

> Module 5: In what ways was the feedback you received on PS1 supportive and/or challenging as you worked on PS1?

> Final: In what ways was the feedback you received this semester supportive and/or challenging?

> Reflection journals were analyzed using open coding. Codes were applied once per theme occurrence. For example, if a student referenced source evaluation as a place of stuckness twice, the code for Evaluation was only applied once. In some instances, codes were applied twice in a journal entry if the student specified a unique and different iteration of the theme. Thematic root codes were Stuck Places, Getting Unstuck, Feedback Reaction, and Transfer of Learning. Table 15 describes each root code and

description.

Table 15

Reflection Journal Codebook Root Code Descriptions

Root Code	Description	Example
Stuck Places	Instances where students report that they struggled with a concept or task. This could mean that the concept or task was new or more advanced than their previous experience	"I got stuck a lot while working through the practice segments. It took me awhile to evaluate the sources. To make that happen I had to read it over several times and then mentally summarize what I understood."
Getting Unstuck	Students' self-identify sources, strategies, or people helped them emerge from their previous stuck place.	"The APA Citation Guide helped me get the hang of doing citations. I have printed it out so I can use it for future reference."
Feedback Reaction	Students describe their reaction to the feedback provided by their instructor.	"The feedback was very helpful and encouraged me to learn what I needed to correct."
Transfer of Learning	Students self-report engaging in the process of practice and identifying current or future applications of knowledge.	"Up until this class I struggled with APA citations, but throughout the semester I have finally mastered it. I will use this knowledge in my other classes."

Stuck Places. Stuck Places represent conceptual gateways or thresholds where

students encounter concepts that are difficult to learn and challenge previous assumptions

(Land et al., 2014; Perkins, 1999). Stuck Places described instances where students

reported struggling with a specific concept or task, meaning that the concept was new or

more advanced than previous experience. For this code to be applied, students had to

specifically express that they found a certain concept confusing, difficult, or that they

struggled or got stuck. To prevent assumptions regarding stuck places, the code was not

applied to a statement indicating a concept or task was new or to statements when the

student referenced getting a concept wrong. Newness or incorrect application of a

concept did not necessarily mean a student struggled or felt stuck when confronted with

the concept. Codes applied under this root code were Research Process, Source

Evaluation, Understanding Assignment, Annotation Writing, APA Citation, Non-Specific

Stuckness, Formatting, Online Learning, and Not Stuck. Table 16 displays code

descriptions and number of applications.

Table 16

Code Applications Within the Stuck Places Root Code

Code	Description	Module 5	Final
Research Process	Student got stuck with the process of researching their topic in the online databases.	10	9
Source Evaluation	Student got stuck with the process of evaluating their source.	2	6
Understanding Assignment	Student got stuck in the process of understanding the requirements of the assignment.	3	4
Annotation Writing	Student got stuck with the process of writing an annotation and incorporating the source evaluation into their writing.	6	3
APA Citation	Student got stuck with the process of creating or editing an APA citation for their source.	7	3
Non-Specific Stuckness	Student expressed feeling stuck but did not specify the cause of their stuckness.	0	4
Not Stuck	Student reported not getting stuck with any component of the assignment. Student reported feeling confident due to reading/watching module content, videos, and assignment instructions.	5	2
Non-Comment	Student did not comment on the issue of stuckness in the journal entry.	2	1

Module 5 code applications reflected students' initial struggle, while Final applications were representative of their summative experience.

Research process. The Research code was applied when students referenced struggling with elements of the research process, such as navigating the database interface, keyword selection, and keyword pairing, narrowing a result list, and locating a particular source type. While students engaged in multiple feedback-driven assessments focused on keyword development, they were required to use three of five assigned library databases. The learning curve of accessing new content through different database interfaces could explain why the number of applications remained high.

Source Evaluation. The Source Evaluation code was applied when students referenced struggling with the process of evaluating sources. The number of applications increased by four from Module 5 to the Final. This increase was anticipated as students were asked to evaluate increasingly complex source types as the semester progressed. PS1, occurring just prior to the Module 5 reflection journal, had students evaluating a reference source, while PS3 had students evaluating scholarly articles.

Understanding Assignment. The Understanding Assignment code was applied when students referenced struggling with the assignment in general but did not elaborate on what aspect of the assignment was troublesome. PS assignments incorporate research, evaluation, citations, and writing. Reference to struggling with the assignment could indicate that the student struggled with the process of combining concepts or with more than one individual component. As with the Non-Specific code, assumptions could not be made as to the exact source of the struggle.

Annotation Writing. The Annotation Writing code was applied when students referenced getting stuck with the process of the annotation, which is largely focused on

source evaluation. Reference to struggling with the annotation could represent a variety of stuck places as the annotation writing process incorporates several concepts. These concepts included summarizing the source, evaluating the source, and the mechanics and style of writing. While some students clarified which parts of the annotation writing caused stuckness, some referenced it in generalized terms. Student 4.E stated, "Completing the annotations was a challenge for me."

A 50% decrease occurred in the Annotation code from Module 5 to the Final. This decrease was anticipated as those processes were practiced repeatedly throughout the semester. Students who reflected on the liminal struggle with annotations referenced issues with the writing process. Student 6.E stated, "I got stuck when writing my annotations. I would refer back to my keywords and feedback from my instructor to help me get back on track." While the majority of students reported struggling in the liminal space, some students stated they did not feel a sense of stuckness.

APA Citation. The APA Citation code was applied when students referenced struggling with the process of constructing a citation in APA style. While students were provided with aids in the course and through the online database to assist them in this process, it proved to be the second highest area of stuckness. Student 4.C stated, "When working on the practice segments I felt stuck when citing the sources. I referred back to the APA Citation Guide to help me get unstuck and cite my source." Like the Annotation writing code, there was a significant decrease in code applications from Module 5 to the Final.

Not Stuck. The Not Stuck code was applied when students specified that they were challenged by new or advanced concepts but did not "get stuck." These students, when confronted with a challenge, exhibited a growth mindset by strategizing and

utilizing course materials to develop a new approach to solving a conceptual problem (Dweck, 2006, 2007). In the Module 5 reflection, Student 2.A stated, "I did not feel stuck at all while working through PS1. The instructions provided by my instructor were precise and I made sure to follow them. I also watched the videos posted about the assignment from my instructor." The Not Stuck code should not be misconstrued as a lack of entry into the liminal space; these students still entered and worked through a conceptual threshold. Not Stuck students found the feedback process reaffirming of their successes in navigating new or advanced challenges.

Getting unstuck. Previous studies have explored student emotions or oscillation between new and old habits as conceptual gateways are entered (Felten, 2016), but the contributing factors to transitioning past stuckness seem to remain unidentified. The root code Unstuck described times when students self-identified sources, strategies, or individuals who helped them work through their stuck places. Thematically, this root code did not suggest that the student had mastered a particular concept or had fully overcome stuckness; it only indicated an assistive tool aiding in the process of learning transfer. Codes applied under this root code were Feedback, Course Materials, Strategy Adaptation, Library Assistance, Still Stuck, and Non-Comment.

Codes were applied once per journal entry, with the exception of the course materials code. For example, if a student mentioned instructor feedback as a means of getting unstuck multiple times, it only received one code application. If the student mentioned multiple course materials as a means of getting unstuck, each type of course material was counted. For the purpose of Table 17, the lump sum of course material application was counted once per journal entry; and for the purpose of Table 18, each application was counted individually. Table 17 describes each code and notes code

occurrences in the journal entries.

Table 17

Code Applications Within the Getting Unstuck Root Code

Code	Description	Module 5	Final
Feedback	Student reported that the feedback provided by their instructor helped them get unstuck.	6	27
Course Materials	Student reported that materials provided in the course helped them get unstuck. These materials include guides, course content, videos, and assignment instructions.	10	23
Strategy Adaptation	Student reported that they altered their own research strategy through trial and error prior to getting feedback to get unstuck.	7	8
Non-Comment	Student did not provide a comment describing a stuck place.	9	2
Still Stuck	Student reported that they were still stuck within a conceptual gateway, failing to move past the initial state of stuckness.	3	1
Total		35	61

Feedback. The Feedback code applications occurred when students indicated that feedback from their instructor helped them get unstuck. Of note is the significant increase in student perceptions of the role of feedback as an assistive tool in the liminal space from Module 5 to the Final. The increase could be attributed to the Module 5 prompt which asked students to feed forward by describing how they intended to use instructor feedback in the future. Another possible influence was instructor encouragement for students to use the feedback to make improvements and resubmit the assignment. This data point, as it relates to specific research questions, is discussed in more detail later in this chapter.

Course materials. The Course Material code applications described the use of tools and resources provided in the course to help students get unstuck. These sources included an APA Citation Guide, learning module content, TRAP evaluation guide, instructor created videos, and assignment instructions. Not all students reported course materials as a means of getting unstuck, and some referenced multiple course materials which were used in tandem. Code applications for course materials were applied for each course material iteration mentioned in the journal entries; some students referenced course materials in a general sense, while others referenced specific tools. Table 18 counts course material iterations to rank which tools had the greatest impact.

Table 18

Occurrences of Specific Course Materials Referenced by Students

Course Material Referenced	Module 5	Final
APA Citation guide	4	4
Instructor Videos	2	6
TRAP Evaluation Guide	2	5
Learning Module Content	0	4
Assignment Instructions	1	3

The APA Citation Guide was a checklist style tool that walked students through the process of creating an APA citation for each type of source covered in the course. The TRAP Evaluation Guide walked students through the process of source evaluation with guiding questions for the timeliness, reliability, relevance, audience, and purpose of the source. The unexpectedly low numbers for the guides are triangulated with instructor feedback samples and analyzed later in the chapter. Instructor videos were created by instructors to frame student learning in each module beyond the written content. Video content was unique to each section as instructors tailored it to the needs and understandings of the student group.

Strategy adaptation. The Strategy Adaptation code occurred when students reported they altered their own research strategy through trial and error prior to receiving feedback. Examples of strategy adaptions included changing keywords, experimenting with Boolean Operators and database limiters, and narrowing or broadening a search. For example, Student 4.D stated, "Sometimes, when doing database search, I could not find the information desired. Changing my keywords and using Boolean operators and limiters was the answer to easily finding what I was searching for." Strategy Adaptation was also applied when students referenced handling confusion by rereading assignment instructions or utilizing a course materials tool; therefore, there are code co-occurrences with the course materials code.

Non-Comment. The Non-Comment code was applied when students did not comment on the process of getting unstuck in their journal entry.

Still Stuck. The Still Stuck code was applied when students specifically stated they were still stuck within a conceptual gateway, failing to move past the initial state of stuckness. Student 1.D stated, "The videos helped me with the hanging indents, although I don't feel like I have mastered it." While it could be presumed that Non-Comment indicated that students were still stuck within the entry point of the threshold, this assumption cannot be made in the absence of perceptual input from participants. Of note is the overall decrease of the Non-Comment code from Module 5 to Final.

Feedback Reaction. To understand the potential impact of feedback on student learning, student perceptions of feedback were investigated. The root code Feedback Reaction was applied to student descriptive reactions to their instructor's feedback. As students were asked to share their reaction to feedback, responses were thematically different and did not correlate to code applications for feedback with the Getting Unstuck

root code. Codes developed for this root code were Supportive, Pathway to

Improvement, Error Indication, Meaningful Interaction, Non-Comment, and Negative.

Codes were applied once per iteration of a theme within a journal entry. For example, if

the student described the feedback as meaningful and supportive both codes would be

applied. Table 19 describes each code and notes code occurrences in the journal entries.

Table 19

Code Applications Within the Feedback Reaction Root Code

Code	Description	Module 5	Final
Supportive Feedback	Student reported that they believed the instructor feedback was helpful, supportive, or encouraging.	21	22
Pathway to Improvement	Student reported that the feedback assisted them by offering a solution or pathway to make corrections and improvements to their assignment.	10	11
Error Indication	Student reported that the feedback helped them see what was incorrect with their assignment submission.	12	8
Meaningful Interaction	Student reported that the feedback had a profound and personal impact on student learning, motivation, confidence, and/or persistence.	0	9
Negative	Student reported having a negative experience with the feedback process.	0	1
Non-Comment	Student did not report a Feedback Reaction provided by the instructor.	7	0

Supportive Feedback. Students described Supportive Feedback as helpful and

encouraging. Of the 30 participants, 70% indicated the feedback was supportive. There

was a high rate of code co-occurrence between Supportive/Pathway to Improvement and

Supportive/Error Indication. These co-occurrences indicated that while the feedback

addressed a weakness in the student's work, students perceived the tone and intention of the feedback in a positive way. In the Module 5 reflection journal, Student 2.D stated, "[the feedback] was very supportive and I liked the feedback you gave on every assignment not just this one. I feel like if I have done something wrong, I need to fix it the next time around." In the Final reflection journal, Student 2.D stated, "I love the feedback you give to me, it was very supportive and even when I messed up you always had something great to point out as well. Thank you for that!"

Pathway to Improvement. The Pathway to Improvement code was applied when students expressed that feedback helped them find a solution or strategy to help improve their work. Thirty-three percent of students in Module 5, and 37% in the Final reported feedback as a pathway for improvement.

Error Indication. The Error Indication code was applied when students described the feedback as helping them identify what was done incorrectly in their assignments. Most students expressed appreciation at being made aware of what was wrong and being provided an opportunity to make corrections. Some students noted that feedback made them aware of mistakes and indicated that they could self-correct using this knowledge in the future.

Meaningful Interaction. The Meaningful Interaction code was applied to statements that described feedback as having a profound, personal impact on student learning, motivation, confidence, and/or persistence. This code unexpectedly emerged during the open coding process of the Final reflection journals. The code was never applied in Module 5 and demonstrated a shift in tone. Students 6.A and 6.C represent this shift as they had Non-Comment applied in Module 5 and shifted to Meaningful Interaction in the Final. Student 6.A stated,

Some instructors tend to belittle students instead of helping them with their criticism. Never once did I feel that this semester. [The feedback was] very informative and helpful. It made me understand what I had done wrong and how to fix it.

Student 6.C stated,

The feedback made a huge difference in the outcome of my grade in this class. I used the information from my instructor to learn and improve on each assignment. I was able to see exactly what I did right/wrong and was able to make corrections on the assignments.

Negative. The Negative code was applied when students reported having a negative reaction to the feedback process. Student 5.B reported a negative impression of feedback, stating, "The feedback given was necessary; however, at times it could be a bit harsh and sort of judgmental."

Non-Comment. The Non-Comment code was also applied when students failed to indicate a reaction to the feedback. In the Module 5 reflection journals, seven students failed to comment on the feedback process. In the Final reflection journal, all students commented on the feedback process. This indicated that by the end of the course, all students had developed an opinion on having been given feedback.

Transfer of Learning. The Transfer of Learning root code described instances where students reflect on engaging in the liminal space or the transfer of learning. Transfer of Learning only occurred in the Final reflection journal. Codes applied under this root code were Liminal Space, Course Design, Current Application, Future Application, and Concept Mastery. Codes were only applied once per journal entry. Table 20 describes each code and notes code occurrences in the journal entries.

Table 20

Code Applications Within the Transfer of Learning Root Code

Code	Description	Final Reflection Journal
Liminal Space	Student describes the process of practice, resubmitting, and reviewing work for correction. Indicates a willingness to try again and seeking to understand how to improve.	14
Course Design	Student describes that the scaffolding in the course design helped them process forward in the liminal space.	6
Current Application	Student describes instances where they have applied concepts and skills from LIB 301 in their other course work or nonacademic situation.	3
Future Application	Student describes how they plan to apply concepts and skills from LIB 301 in future coursework or nonacademic situations.	11

Liminal Space. The Liminal Space code was applied to student descriptions of

the process of practice and resubmission of their work. Students who engaged in the

feedback loop indicated a willingness to try and improve. Student 4.D stated, "The

structure and positive tone of the feedback helped me the most to feel motivated and

improve." Distinct liminal struggles were not defined or used to determine code

application, as entry points into the threshold are unique to each learner. Instead, the

researcher noted descriptions of the struggle students experienced as they wrestled with

concepts in the course. In the Final reflection, Student 2.A stated, "The supportive

feedback helped me reach the end. I had to redo a practice segment because I did not do

it right the first time, I made sure not to repeat the mistakes as I proceeded through the

course."

Course Design. The Course Design code, while not describing a liminal struggle or instance of transfer, indicated that some students perceived the design of the course as playing a vital role in their ability to process through the liminal space. Student 3.B stated, "I learned a lot in this course by the feedback and how organized and straight forward the course was. It really helped me remember the material that I was learning." Student 3.C stated, "I think the progression of the course was well-planned, making it easy to build on prior understanding." There was a significant rate of co-occurrence between the course design and the liminal space or current application codes.

Current Application. The Current Application code was applied to students indicating they applied knowledge from LIB 301 in their other course work or a nonacademic situation. While students were encouraged to develop a research question centered on a research need from another course, data indicated that students were not simultaneously applying knowledge from LIB 301 beyond the course. Low application of this code could be attributed to students not specifically asked to indicate current application of knowledge from the course.

Future Application. The Future Application code was applied when students reported the intent to use concepts and skills used from LIB 301 in future courses and nonacademic situations. While statements were concrete, like mentioning the use of APA citation style, most statements were generic and nonspecific. Student 4.B stated, "The TRAP evaluation method we learned is an easy acronym for me to remember, and I'm sure I will continue to use it for future research in other classes."

Data Array 3: Instructor Questionnaire

Instructors participating in the study were surveyed regarding their perceptions on

the impact, purpose, and opinion of formative feedback on transfer of learning in the liminal space. Five instructors teaching the 16-week version of the course completed an anonymous questionnaire describing their personal feedback style, beliefs on the feedback process, and perceptions of students transferring their learning (Appendix G). Though questionnaire items were designed to address individual themes, respondents frequently blended themes across items. As a result, themes were analyzed across responses rather than by item.

The questionnaire Question Codebook was developed using open coding, identifying themes related to beliefs on the impact of feedback, feedback style, and students in the liminal space. Thematic root codes were Students in Stuck Places, Feedback Style, and Transfer and the Liminal Space. Table 21 describes the root code and code descriptions.

Table 21

Instructor Open-ended Questionnaire Codebook Root Code Descriptions

Root Code	Description
Students in Stuck Places	Assumptions and perceptions that instructors have regarding when and why students get stuck in their learning.
Feedback Style	Instructors describe the purpose and type of feedback they provide to students.
Transfer and the Liminal Space	Instructor describes situations where they believe feedback influences growth in the liminal space and the degree to which feedback influences learning transfer.

Each root code contained codes that further defined root code categories. Two lines of inquiry were used to analyze questionnaire responses. Code applications were counted as a collective total and by thematic occurrence by instructor. For example, one

analysis point identified the number of instructors who addressed student confidence in the questionnaire. The other analysis point identified the total number of times the theme of student confidence occurred across all responses.

Descriptions of feedback practices made up 56% of root code applications with 62 code occurrences. Instructors seemed to feel most comfortable reflecting on their own practice. Statements describing the relationship between feedback and transfer and the liminal space made up 34% of root code applications with 37 code occurrences. Instructors seemed largely divided with a range of responses from uncertainty to confirmation that a relationship exists. Identifying moments where students are stuck in their learning made up 10% of root code applications with 11 code applications. Instructors expressed discomfort in or chose not to identify these moments, with one instructor stating, "It is somewhat difficult for me to judge this."

Students in Stuck Places. Stuck places represented conceptual thresholds or gateways where students are stuck in the process of learning. The Students in Stuck Places identified instructor assumptions regarding when and why students are stuck in their learning. Three instructors addressed the theme of stuckness 11 times throughout the questionnaire. Where students identified obstacles from the course as stuck places, instructors identified external obstacles as stuck places. Codes applied under this root code were College Readiness, Student Confidence, and Student Investment. Table 22 displays code descriptions and number of applications.

Table 22

Instructor Perceptions of Why Students Get Stuck in Their Learning

Code	Description	Total Applications
College Readiness	Weak academic habits, lack of experience in applying critical thinking in an academic setting, some students may never "get it," hand holding.	6
Student Confidence	Students are overwhelmed and experience self-doubt as they enter new conceptual thresholds. This includes being new to online learning.	2
Student Investment	Students experience stuckness as a result of not engaging with the course materials provided, any invested student can improve.	3

College readiness. Three of five instructors indicated that the preparedness of students as it related to success in the course was of concern and addressed college readiness thematically. Instructors described students having weak academic habits and lacking academic critical-thinking skills as barriers to tackling new conceptual information. One instructor stated, "Most of the time when students seem stuck in their understanding of a particular concept, it is due to a weak academic background. They lack critical thinking skills because they weren't regularly challenged to use those skills." The College Readiness code had a single code co-occurrence with Student Confidence.

Student Confidence. The Student Confidence code was applied when instructors described an assumption that student feelings of self-doubt or being overwhelmed impacted growth in the liminal space. Studies by Felten (2016) and McCartney et al. (2009) supported instructor assumptions that self-doubt and confidence impacts student behavior and growth in the liminal space. This code was applied statements from two instructors where student confidence was addressed in the context of being stuck. One instructor stated,

Many students are starting or going back to school after many years or even decades, and many of them do need formative feedback and even a little hand-holding in order to succeed. Many lack confidence, and the online learning experience is something brand new to them.

Student Investment. The Student Investment code was applied when instructors cited student lack of engagement with the course content and feedback as a cause for stuckness. These instructors believed that any student invested in his/her own learning could improve. One instructor stated, "Feedback works for the students who are invested in learning. I don't think anything can help the ones who are not."

Feedback style. Instructors were asked to describe their feedback style and the purpose of the feedback they provided. Descriptions of purpose and feedback style made up 56% of code applications from the questionnaire responses. Codes applied under this root code were Extending Feedback, Concern for Impact, Mistake Identification, Constructive Critique, Praise, Specific/Robust, and Use of Tools. Table 23 describes codes and code descriptions.

Table 23

Instructor Descriptions of Feedback Style

Code	Description	Example
Extending Feedback	Instructor indicates that they provide extended feedback that offers deeper explanation of a concept at the student's point of need that could be written, verbal, or video based. This includes extending an offer to the student for a one-on-one meeting.	"I try to explain the problem in different words and always ask if my explanations makes sense so they have another opportunity to talk with me."
Concern for Impact	Instructor expresses concern about how feedback could potentially impact student confidence and learning. This includes having an awareness of using an encouraging tone.	"Feedback lets the student know that you believe in them. That you care about their learning. It helps establish a safe learning environment and that helps students feel free to ask questions."
Mistake Identification	Instructor indicates that their style includes mistake identification and corrective/instructive feedback is provided. This includes addressing grammatical and writing weaknesses.	"Your citation is not in APA style."
Constructive Critique	Instructor indicates that their style includes descriptive and constructive suggestions for improvement. Student is encouraged to practice and resubmit.	"When a student feels stuck I try to explain a concept in different ways, providing examples from a different area of life to see if something clicks."
Praise	Instructor indicates that their style includes praise to provide encouragement. Praise can range from "Good job!" to identifying what the student does correctly.	"For a discussion post, I might say "Great job!" or "Exactly what I was looking for." In terms of actual assignments, I try to give them more substance in my feedback."
Specific/Robust	Instructor indicates that their style of feedback identifies specific areas for improvement and offers pathways to improvement.	"I try to spell everything out so they have information that will help them the next time. I am very specific about what they miss in citations or TRAP evaluation and offer suggestions for grammatical improvement."
Use of Tools	Instructor indicates that they incorporate and consider the use of technology tools and/or instructive guides to aid in the feedback and learning process. (Zoom, Videos, LibGuides, APA Citation Guide, TRAP guide)	"Rather than just telling them what they did wrong or showing them the correct format, it is more useful to point them to towards the tools and encourage them to try to figure it out on their own first."

In describing feedback practices, all of the instructors cited a concern for how feedback could impact student confidence and learning. This concern led instructors to use a positive tone in their written feedback even when addressing a weakness in student work. The lowest number of code applications was applied to providing Praise, although all five instructors addressed it. Applications of the other codes were consistently mentioned by at least 80% of instructors. Occurrences of feedback style are described in Figure 4.
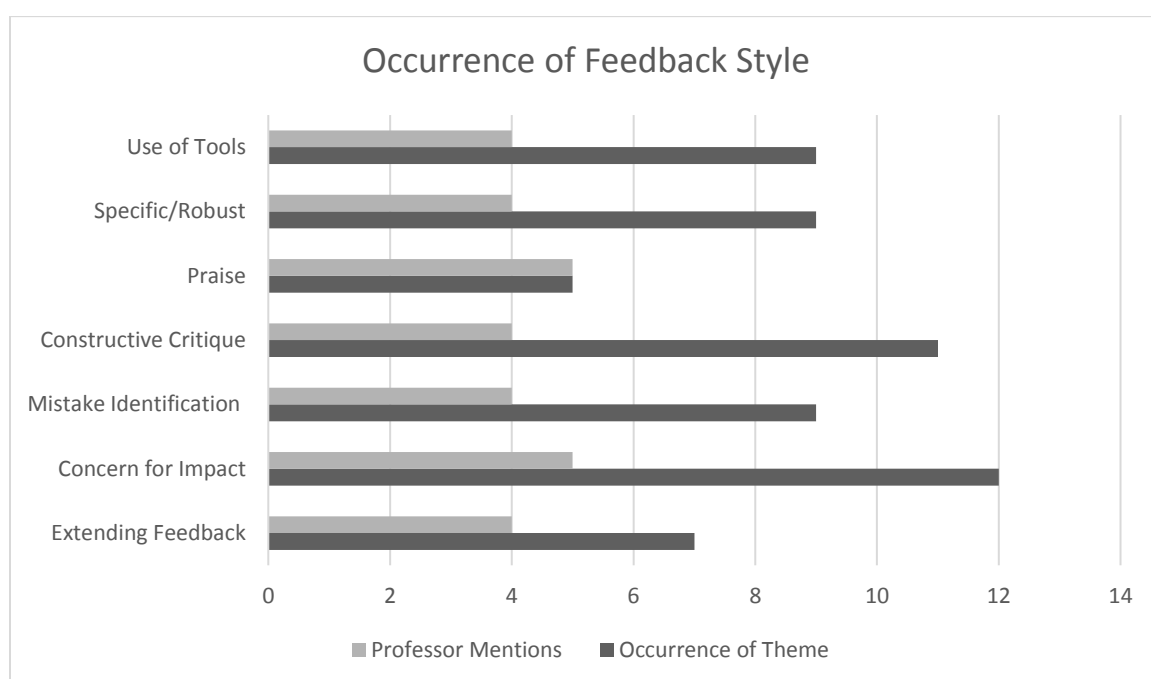
Figure 4. Occurrence of Feedback Style.

With 11 applications, Constructive Critique, meant to encourage practice through suggestions for improvement without providing exact corrections, was cited as the most frequent type of feedback provided. Of note were the co-occurrences of mistake identification and specific/robust codes. Student 1.D received the following feedback, "The capitalization in your citation is incorrect. Take a look at the APA Citation Guide

and follow the example on page 3." These codes co-occurred in feedback style descriptions for 60% of instructors. This co-occurrence indicated that while an instructor may have pointed out something that was incorrect, they were providing a pathway for improvement. This pathway often included the use of tools, both within the course and for those used to extend feedback.

Transfer and the Liminal Space. Code applications for Transfer and the Liminal Space made up 34% of root code applications with 37 code occurrences. Codes focused on identifying statements that addressed the potential relationship between feedback and growth in the liminal space, application of knowledge beyond the course, and descriptions of transfer within the course. Codes applied under this root code were Process Learning, Confidence, Application Beyond Course, Relationship Exists, Relationship Uncertain, and Relationship Dependent. Table 24 displays code descriptions and number of applications pertaining to the relationship between feedback and liminal growth.

Table 24

Instructor Perceptions of the Relationship Between Feedback and Liminal Growth

Code	Description	Code Applications
Process Learning	Instructor believes that students learn new concepts and hone them through repeated practice and application. Students learn from their mistakes which leads to future improvement.	12
Confidence	Instructor believes that feedback impacts how students interpret assignment criticism leading to a decreased sense of failure and willingness to improve and try again.	7
Application beyond Course	Instructor believes that students will use learning beyond the course or students have expressed that they intend to use learning beyond the course.	5
Relationship Exists	Instructors believe that there is a connection between feedback and transfer of learning.	6
Relationship Uncertain	Instructors are uncertain about the impact of feedback on students' transfer of learning.	4
Relationship Dependent.	Instructors believe a relationship exists between feedback and transfer of learning, but it is dependent upon the willingness of the learner to engage in the process. It may not work for all students.	3

All five instructors expressed the belief that students learn and improve through

the process of repeated practice. Descriptions of process learning referenced feedback as

part of the cycle of practice and improvement. One instructor stated, "As students move

through a learning process, it is important to build a strong foundation. You must start at

the beginning and move forward and upward." While the collective group repeatedly

described feedback as influencing growth and improvement, only three instructors

affirmed that a relationship exists between feedback and the ability to transfer learning.

Three instructors described the essential role of student investment in the process as key

to growth and improvement, and four instructors expressed uncertainty about the relationship between feedback and student ability to transfer learning. Instructors appeared to oscillate in their beliefs on the influence of feedback in the process of liminal growth and transfer of learning in their responses. Data indicated that instructors might be experiencing their own back and forth, or oscillation, in confronting the newly entered threshold of understanding liminal space as a concept.

Instructors frequently reported the belief that feedback plays a role in increasing student confidence, in turn influencing their persistence in practicing challenging concepts. While only 60% of instructors addressed the connection explicitly, all of the instructors cited a concern for how their feedback might impact student learning. One instructor stated, "Feedback lets the student know you believe in them – that you care about their learning. It helps establish a safe learning environment and that helps students feel free to ask questions." As part of the feedback loop, students were provided an opportunity to respond to instructor feedback through reflection journal prompts, allowing instructors the opportunity to adapt feedback styles or make early interventions. Four of five instructors indicated they believed students applied learning from LIB 301 in a new or different situation. These beliefs were based on students self-reporting the application or demonstration of transfer within the course.

Triangulation of Data in Regard to Research Questions

The previous data were included in order to understand the broad scope of this study. In order to fully answer the research questions from the study, data from each data array were triangulated. The triangulation of data allowed the researcher to look at each question in context to student perception, instructor perception, and actual feedback occurrence.

Research Question 1. What types of feedback occur in an online information literacy course for adult undergraduate students? Data Array 1 analyzed feedback samples to determine the type of feedback provided to students in LIB 301. Samples generated 499 code applications that were organized into specific and general feedback categories. Code applications identifying feedback types are depicted in figure 5.
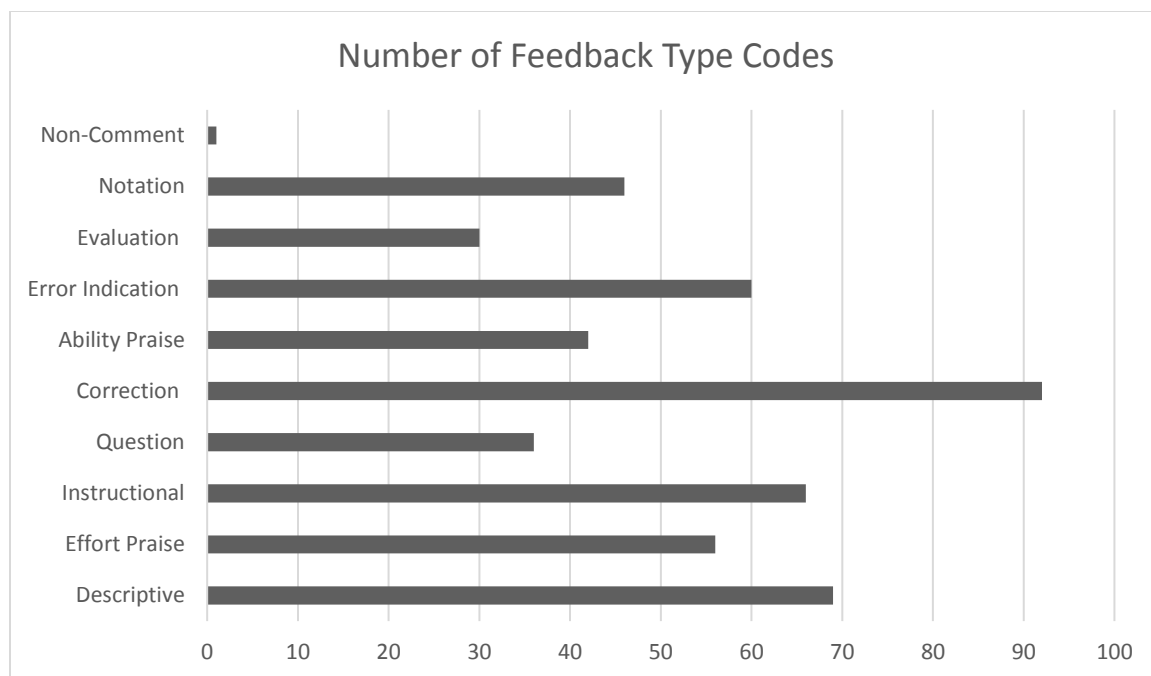
Figure 5. Number of Feedback Code Types.

Specific feedback made up 64% of feedback provided. Iterations of general feedback were accompanied with specific feedback. Seventy-six iterations of feedback did not provide specific feedback and were evaluative, indicating the student met the standard, or a notation, indicating that the student needed to contact the instructor for detailed instruction. While 3 of 5 instructors indicated having a specific and robust style of feedback, all instructors provided specific feedback consistently throughout the course.

As indicated in Data Array 1, the researcher chose to reassign corrective feedback

as a form of Specific rather than General feedback; although in Bennett's (2016) study (from which the feedback codebook was derived), corrective feedback was categorized as a form of general feedback. In LIB 301 corrective feedback was highly detailed and offered students a pathway towards improvement. Corrective feedback, 18% of the total feedback, focused on grammar, mechanics, citations, and formatting and provided students with exact corrections to errors. Instructive feedback, 13% of the total feedback, indicated an error and provided guidance on how improvements could be made through the use of a tool or questioning.

In both PS1 and PS3, seven co-occurrences of Instructional and Correction feedback were noted. These instances showed the instructor provided guidance using a tool or question while following up with the exact correction to the error; thus, the correction negated the instruction. Corrective feedback was indicative of Brown et al.'s (2014) "trial and correction" rather than instructive feedback's "trial and error" (p. 40). In providing exact correction, the student was not required to think through the correction but instead fixed the error without understanding the correction. This practice has the potential to lead the student to become dependent on the correction being provided by the instructor (Brown et al., 2014). Instructive feedback, however, encouraged recursive practice. The instructor took on the role of facilitator, supporting self-direction by explaining the error and providing a tool to assist the student in making improvements (Black et al., 2003; Brown et al., 2014; Earl, 2013; Foley & Kaiser, 2014; Meyer & Land, 2006).

Feedback supporting self-direction was descriptive, clearly conveying to the student what and why something had been done well, what needed improvement, and a pathway for making improvements (Black et al., 2003). While corrective feedback was

descriptive, meaning it provided a pathway to improvement, it did not foster critical

thinking. Instructive and questioning feedback employed several cognitive functions by

challenging students to problem solve and to consider how they would employ earlier

training to newer experiences (Brown et al., 2014). Table 25 indicates the co-occurrence

of descriptive codes with instructive, corrective, and questioning feedback.

Table 25

Co-occurrences of Descriptive Feedback with Instructional, Correction, and Question Codes

Co-occurrences	PS1	PS3	Total
Description/Question	2	14	16
Description/Instruction	12	10	22
Description/Correction	1	5	6

As stated in Data Array 1, the co-occurrence of description and question for PS3

represented a skew in the data, as seven iterations were derived from a single sample.

While this indicated an increased use of this feedback style by a single instructor, it could

not be interpreted as broad implementation of this style by all instructors.

Effective feedback continually brings students back to the learning goals of the

task at hand (Earl, 2013; Hattie & Timperley, 2007; Shafi et al., 2017). Too often,

feedback focuses on minor errors that distract from the central learning objective (Hattie

& Timperley, 2007). In LIB 301, the central learning objective of the PS assignments

was acquisition and critical evaluation of an assigned source type, both conceptual tasks.

Instructors indicated that their feedback focused primarily on errors relating to skills-

based tasks. Instructor feedback styles are depicted in Figure 6.

Instructor Feedback Style
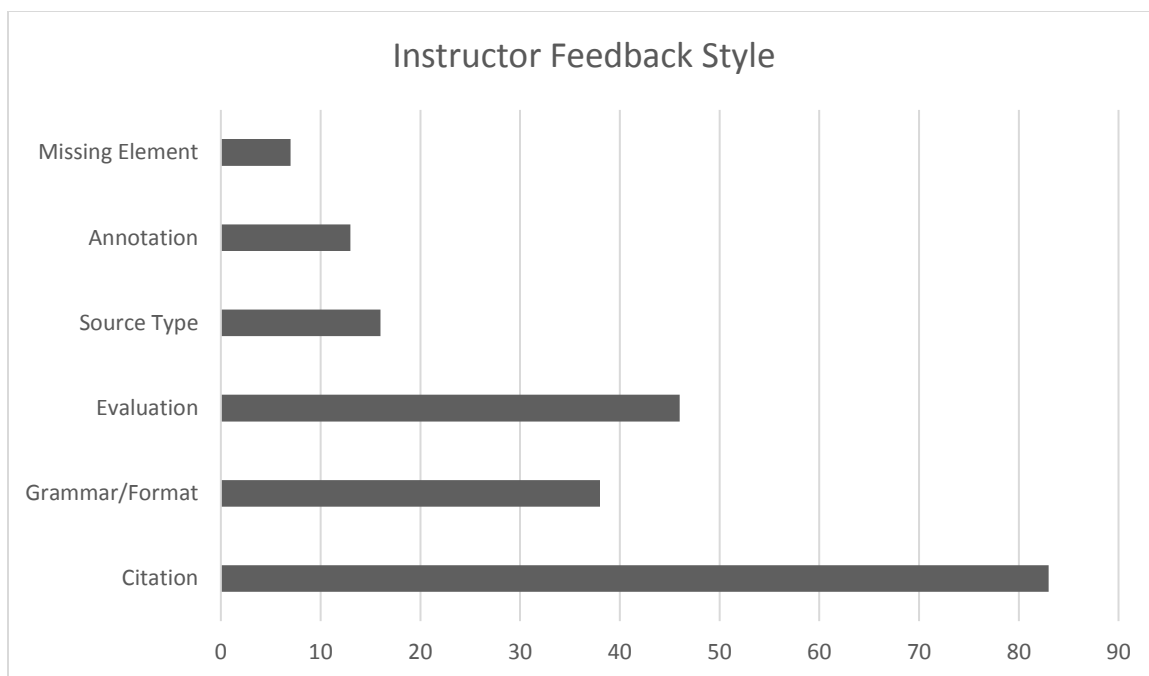
Figure 6. Feedback Styles from Instructor Questionnaire.

The focus on skills-based feedback correlated with the consistently high occurrence of corrective codes applied to the feedback samples. Corrective feedback, when compared to instructional and question-based feedback, represented 47% of the improvement-based feedback provided to students. Citation and grammar/formatting correction represented 56% of the total feedback content, indicating that a large portion of the feedback provided to students did not bring students back to the critical learning objects. Corrective, skills-based feedback weakens self-regulation and hinders a growth mindset. Brookhart (2008) suggested that instructors "identify errors or types of errors, but avoid correcting every one (e.g. copyediting or supplying right answers), which doesn't leave the students anything to do" (p. 6).

Research Question 1 indicated a disconnect between instructor and student perceptions of stuckness. Feedback samples from instructors indicated the belief that

students were experiencing a state of stuckness pertaining to citations and the

grammatical mechanics of writing; however, student reflection journals indicated that

students were experiencing stuckness primarily with the research process and source

evaluation. Student reported stuck places are indicated in Figure 7.

Student Stuckness

Category	Value
APA Citation	10
Annotation Writing	9
Source Evaluation	8
Research Process	19

(horizontal axis: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20)
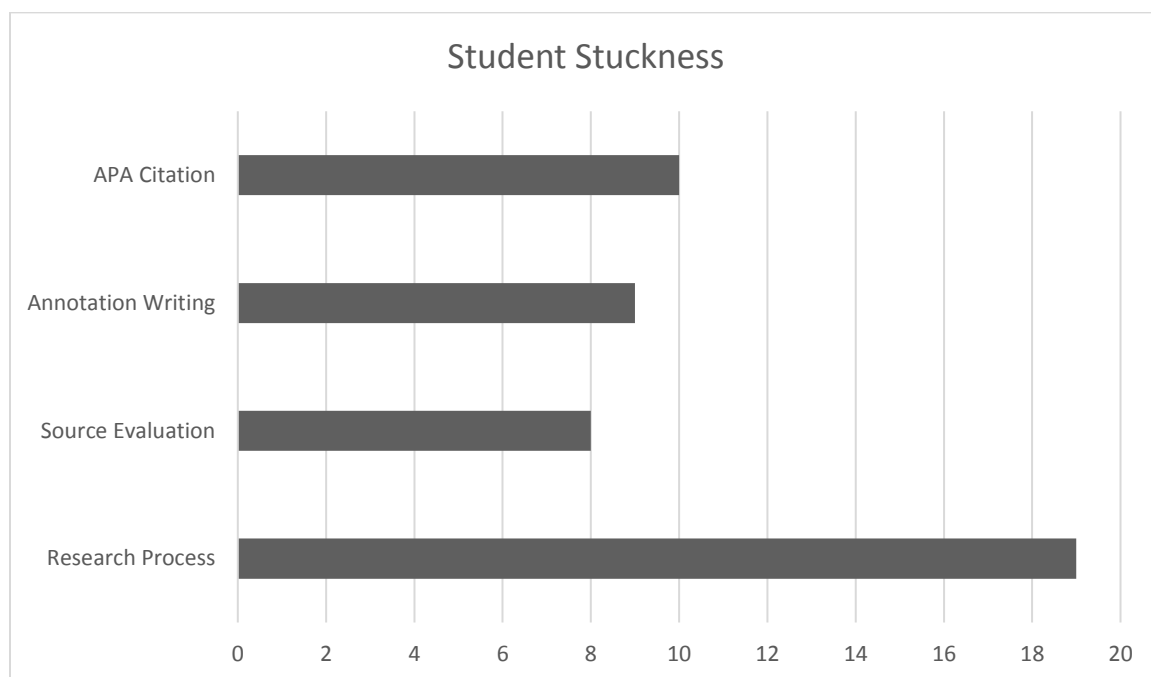
Figure 7. Stuck Places Reported by Students in Reflection Journals.

The majority of students indicated struggling with the research process, yet

feedback to students from instructors on the research process was nonexistent beyond the

selection of an incorrect source type. Students were not asked to describe their research

process in the PS; therefore, the assessment design left instructors largely unaware of

student struggles.

In addition, APA citations represented 17% of students' stuck places, yet

represented 38% of the total feedback content. Source evaluation and the process of

writing annotations represented 29% of student reported stuck places, and yet represented

26% of the total feedback content. As stated previously, instructors utilized skills-based, corrective feedback most frequently.

Students within a liminal space often mimic concept mastery prior to complete understanding and mastery of the concept (Entwistle, 2008; Felten, 2016; McCartney et al., 2009; Meyer & Land, 2005; Savin-Baden et al., 2008). By indicating why something had been done correctly and reinforcing critical thinking, instructors began "closing the gap" between students' current state of understanding and solidified learning (Earl, 2013, p. 100). Student 5.C stated, "The feedback I received helped tremendously, especially when I felt that I had still not grasped the concepts. The constructive feedback helped me know what I had done right and what I still needed to work on." Feedback and course materials represented 80% of the reasons students were able to get unstuck, indicating effective feedback strategies could have a positive impact on growth in the liminal space.

Research Question 2. What perceptions do adult undergraduate students hold regarding how feedback influences their growth in the liminal space? Providing effective feedback required instructors to "[address] both the cognitive and motivational" influence of feedback (Brookhart, 2008, p. 2). Understanding student perceptions of feedback may change feedback tone and delivery to solidify connections between learning experiences and applications. Students in LIB 301 reported a positive reaction to instructor feedback. Student reactions to feedback are depicted in Figure 8.
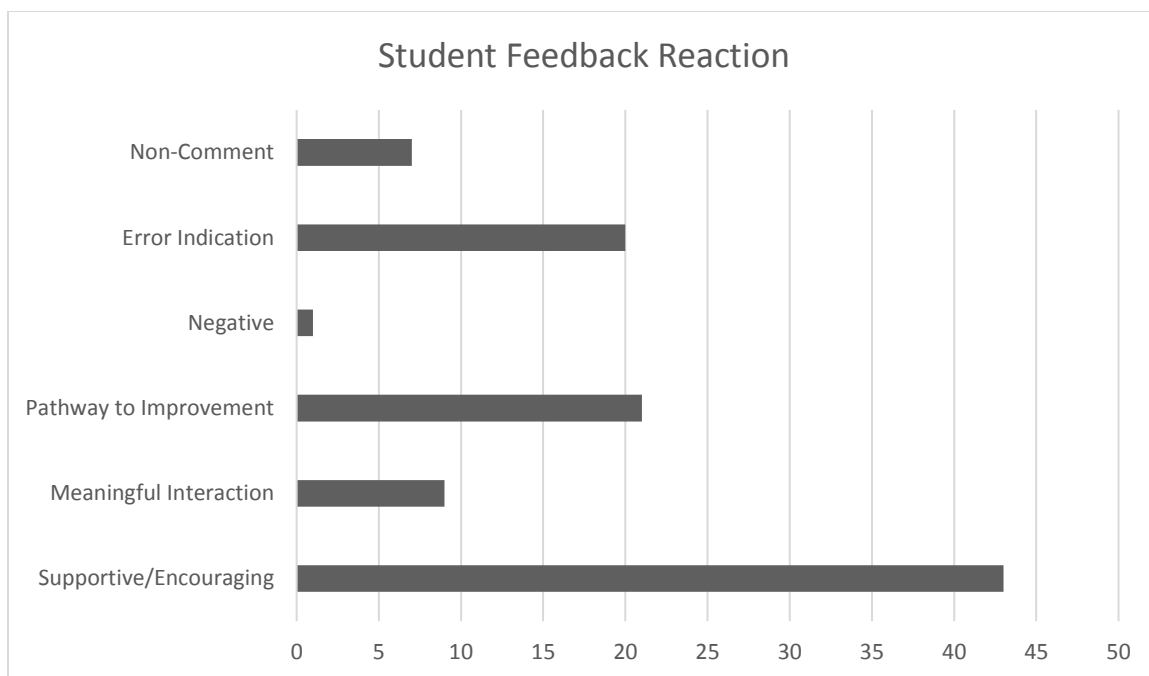
Figure 8. Student Reactions to Feedback Collected from Reflection Journals.

Student Feedback Reaction coincided with instructor conscientiousness that the tone of feedback should build confidence and be supportive. Correlation of these data points indicated that students recognized this intentionality of delivering feedback in order to encourage improvement. Brookhart (2008) emphasized that feedback tone communicates "underlying assumptions" about students as learners (p. 34). This tone can "inspire or discourage" learning (Brookhart, 2008, p. 34). As students were confronted with troublesome knowledge and oscillated in the liminal space, they experienced intense anxiety, self-doubt, and frustration (Felten, 2016; McCartney et al., 2009). If feedback tone implied a belief that students could improve and provided a pathway towards improvement, those instructors leveraged feedback to support growth mindsets. As Student 4.D stated, "The structure and positive tone of the feedback was what helped me the most to feel motivated and improve myself in the class."

In the Final reflection, 14 of 30 student participants described the process of feedback-supported practice as essential to their learning. The opportunity to continually practice, review, and resubmit helped them begin to self-identify errors or develop their own strategy for making future improvements. Student 2.C stated, "Feedback this semester allowed me to go back and see what I did wrong and also how I could improve. Feedback I received also allowed me to become better at other assignments in my other classes." This feedback reinforced the use of assessment as a vehicle for learning through the long-term development of conceptual understandings (Brookhart, 2008; Earl, 2013). Questionnaire data indicated that both instructors and students recognized the value of process learning. Figure 9 depicts the percentage of students and instructors who expressed value in process learning.
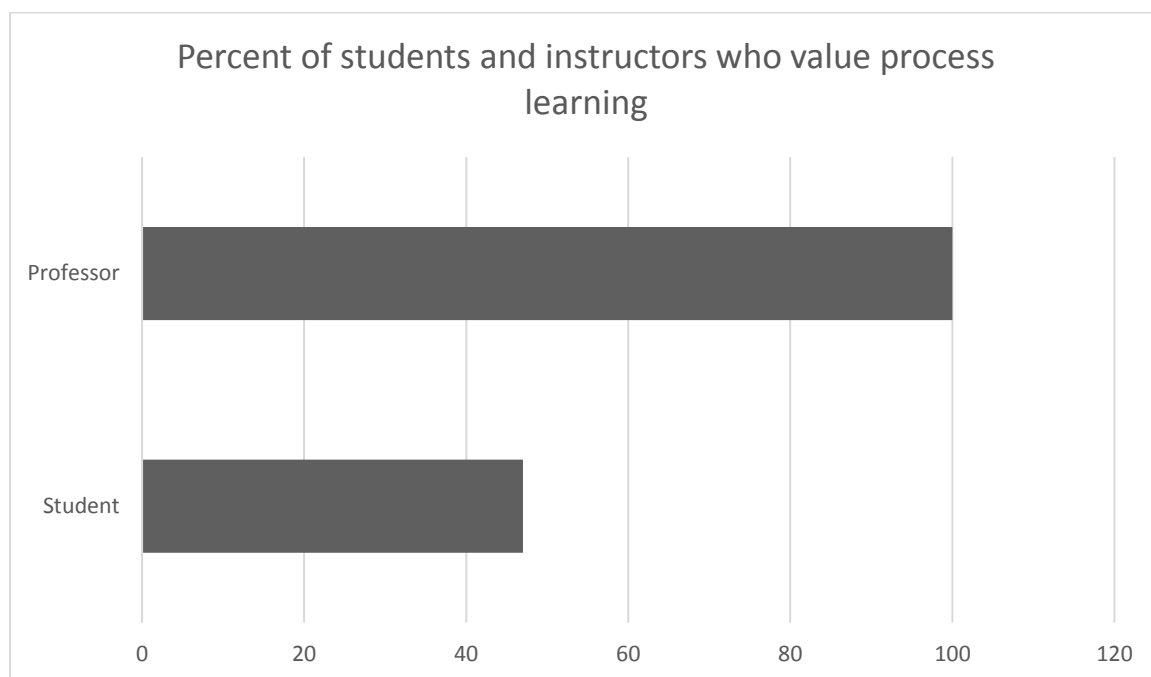
Figure 9. Percent of Students and Instructors Who Value Process Learning.

Dweck (2007) stated that "praise is intricately connected to how students view

their intelligence" (p. 34). Praise can play a positive role in the feedback process but only if praise has high "information value" tied to the learning objective (Hattie & Timperley, 2007, p. 96). Praise represented 20% of the total feedback provided to students in LIB 301. In the study, Effort Praise made up 57% of the praise provided. This contextually situated praise to the learning goal by giving students an explanation for why a task was done well or met the standard. In the study, Ability Praise made up 42% of the praise provided. The student often misinterprets this praise as focusing on praising natural intelligence rather than growth or critical thinking. Parkes, Abercrombie, and McCarty (2013) referred to this practice as "non-substantive positive comments" (p. 398).

Instructors often utilized the "feedback sandwich" technique where praise was used to soften the blow of a critique (Parkes et al., 2013). An instructor from the study noted,

> [my feedback] is not derogatory in nature, even if a student has made several errors or submitted something other than what was assigned. I typically indicate that the student did a good job overall or at least in part – but just needs to correct a few mistakes he/she made.

Praise preceding an error often distracted from instructive feedback and left students confused about what needed to be improved (Hattie & Timperley, 2007; Parkes et al., 2013). Feedback to Student 6.B stated, "Excellent job, [student name]. You just need to add the TRAP evaluation." In the assignment, the evaluation of the source was the anchor learning goal for the assignment. Student 6.B did not include an evaluation of the source; therefore, they could not have done an excellent job on the assignment. The positive feedback provided was in opposition to the critical error in the student's work.

Previous studies indicated that while students might have had a positive response

to praise-based feedback, it does not enhance their subsequent performance on future tasks (Parkes et al., 2013). In this vein, praised-focused feedback void of substance did not impact liminal growth and move students past stuck places. Students in this study reported that feedback did influence them in the liminal space. For some, this concept was perceived as growth and for others just an increase in confidence. In identifying what aided them in getting unstuck, 17% of students reported feedback as the catalyst in the Module 5 reflection and 44% in the Final reflection. Students and instructors participating in the study expressed the belief that learning occurred through repeated practice. As practice was facilitated through feedback, effective feedback was a vital component to student ability to learn.

Research Question 3. How do instructors describe their feedback style and beliefs regarding the role of feedback on the ability to transfer learning and growth in the liminal space? Instructors surveyed in the study were asked to describe their perceptions on student stuckness. This descriptive term represented student entry into a conceptual threshold where they cycle through liminal growth patterns prior to mastery of a concept (McCartney et al., 2009; Meyer & Land, 2005); however, when asked "when" students got stuck, instructors responded with perceptions of "why" students got stuck in their learning. Table 26 depicts student and instructor responses to identifying student stuckness.

Table 26

Instructor and Student Responses to Identifying Student Stuckness

Instructor Responses	Student Responses
College Readiness	Research Process
Student Confidence	Source Evaluation
Student Investment	Understanding Assignment
	Annotation Writing
	APA Citations

Three of five instructors addressed the concept of stuckness. Of note is the lack of overlap in the type of responses given by the two groups. Responses indicated that instructors may still be cycling through their own conceptual gateway in understanding liminal space and recent pedagogical shifts in the field of library science. As instructors either did not address stuckness or identify moments when they believed students got stuck in their learning, instructors could be wrestling with their understanding of entry into learning thresholds.

Data collected in the study indicated that instructors are also learners experiencing their own journey through a threshold of learning; and once a learner has entered a conceptual threshold, they experience periods of growth and regression as they wrestle with mastering a concept – this is the liminal space (McCartney et al., 2009; Meyer & Land, 2005). Instructors responding to the potential for feedback to impact growth and transfer often expressed contradictory beliefs ranging from certainty, uncertainty, and dependent upon student investment in the process. Table 27 depicts instructor responses to the potential for feedback to impact growth and transfer.

Table 27

Asterisk Indicates Reference to the Relationship Between Feedback and Growth

Instructor	Relationship Exists	Relationship Uncertain	Relationship Dependent	Process Learning
A	*	*	*	*
B	*	*	*	*
C		*		*
D	*	*	*	*
E	*			*

While all instructors provided rich descriptions for believing that learning occurs as a process of practice, there was a wide range of shifting beliefs regarding the role of feedback. Three of five instructors expressed shifting beliefs that the relationship between feedback and growth exists, is uncertain, and is dependent upon the learner. Of note is that four of five instructors expressly stated that the relationship exists, while then later stating that the relationship is uncertain. This oscillation indicated that instructors were still developing their own framework for understanding the theoretical constructs and practical application of threshold concepts, liminal space, and transfer.

With a framework that was still under construction, instructor feedback focused on corrective, skills-based feedback. This regression back to a stylistic comfort zone is indicative of the oscillation that occurs as a learner in the liminal space (McCartney et al., 2009; Meyer & Land, 2005). As instructors continued to provide skills-based and corrective feedback, students remained handicapped by relying on the correction rather than tackling the improvement critically (Hattie & Timperley, 2007). This is demonstrated by the high rate of feedback provided on APA citations as compared to the lower rate of feedback provided on improving source evaluations. Figure 10 depicts occurrences of feedback for citation and evaluation focused feedback compared to

student indication of stuck places.
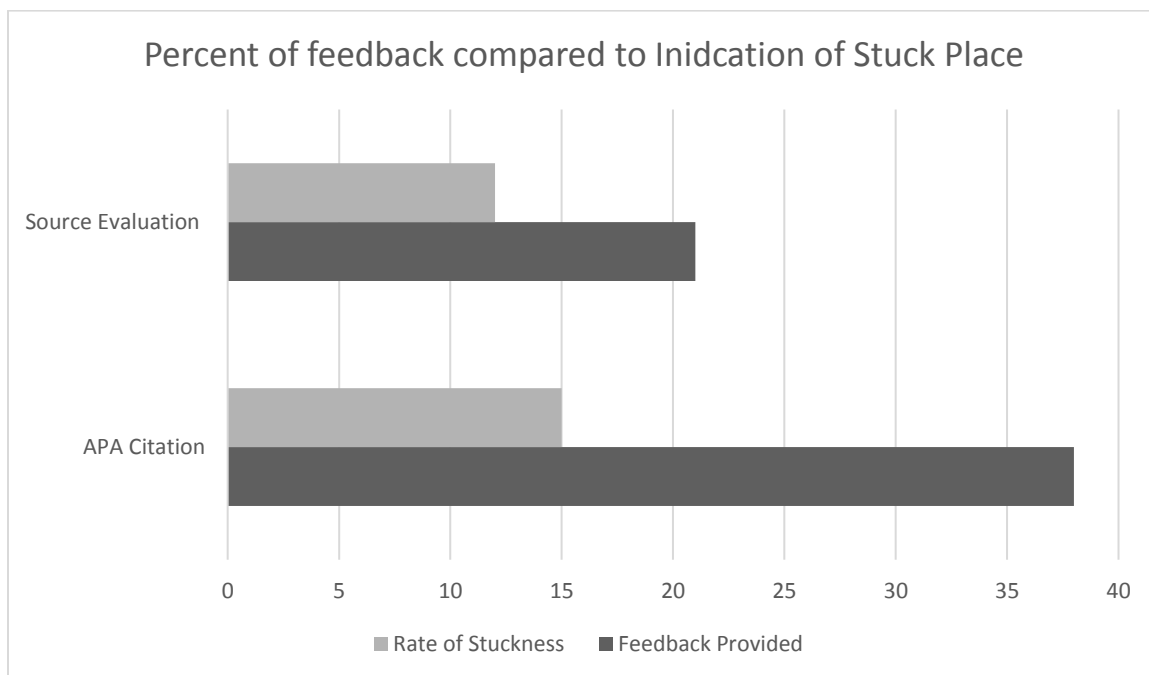
Figure 10. Percent of Feedback Compared to Indication of Stuck Places by Students.

Much of the feedback, 31%, provided to students for APA citations focused on correcting or indicating a mistake. While corrective feedback offers a pathway to improvement, it is not rich in growth potential to help students overcome stuckness as students are merely repeating the correction without contextually understanding the correction. APA citation errors occurred with the same rate of frequency between PS1 and PS3 with 46 occurrences each. This indicated that corrective feedback did not improve student ability to craft correct APA citations throughout the course.

A potential impediment to instructor growth in the liminal space is a criticism of the theory itself: the agent relativity of growth, transfer, and mastery in the liminal space (O'Donnell, 2010; Rowbottom, 2007). Students' threshold entry point was unique to each learner, as was their growth in the liminal space. Some students may have mastered

concepts within the framework of the course, while others may still be cycling through the liminal space. Some students may have demonstrated near transfer of learning within the course but were unable to demonstrate the potential for far transfer beyond the course. As this study relied upon students self-reporting application of information literacy learning beyond the course and student reporting was low, it was difficult to measure the potential for transfer of learning beyond the course; therefore, instructors did not have concrete assurance of liminal growth, leading to an uncertainty of the impact of feedback in the learning transfer process (Moore, 2012; O'Donnell, 2010).

Summary

The purpose of this qualitative case study was to investigate the role feedback plays on student growth in the liminal space and transfer of learning. Findings indicated that feedback played a significant role in student confidence, which is important as students struggle in the liminal space (Felten, 2016). Student data indicated that stuck places occur most with the conceptual components of the course, such as the research process and source evaluation. The majority of feedback provided was skills-based with a focus on corrective styling. Instructors consistently provided descriptive feedback with a high concern that feedback tone should support student confidence. Implications for these conclusions, recommendations for change in practice, and future study are discussed in Chapter 5.

Chapter 5: Discussions, Conclusions, and Recommendations

Summary of the Study

Mastering new knowledge is a transformative process, but what happens between initial confrontation with new knowledge and the moment it is mastered? This study investigated perceptions of how feedback loops impacted student growth and learning transfer in the liminal space. Adult undergraduate learners represented the student voice in the study, a unique lens that has been underrepresented in information literacy assessment (Catalano, 2015; Rapchak & Behary, 2013; Rapchak et al., 2015). Previous study has recognized that entry into the threshold is agent relative and results may not be reproducible (O'Donnell, 2010; Rowbottom, 2007; Scott, 2017). While results from this study may not be replicable, the conclusions reveal broader understandings regarding growth in the liminal space for adult learners.

Threshold concepts gained traction in library science with ACRL's adoption of the Framework in 2015. The Framework, based on Meyer and Land's (2003, 2005, 2006) threshold concept theory and Wiggins and McTighe's (2005) UbD, approached information literacy as a core set of conceptual thresholds through which students must traverse and develop their understanding and ability to research within their discipline of study (ACRL, 2015a). As students enter a conceptual threshold, they are confronted with troublesome knowledge or something that they find conceptually difficult to grasp (Meyer & Land, 2003; Perkins 1999). Savin-Baden (2006) likened these liminal spaces of stuckness as a "disjunction…hitting a brick wall in learning" (p. 162).

The liminal space, while seemingly negative, provides opportunities for students to process through several stages of learning. As students encounter conceptually difficult material, they cycle through stages of regression and mimicking mastery

(Entwistle, 2008; Felten 2016; McCartney et al., 2009; Meyer & Land, 2005). Students experience frustration, anxiety, and success as they flex their ability to understand and apply new learning (Canter, 2016; Felten, 2016). While some students may reject new knowledge and exit the threshold, other students are able to capitalize on development opportunities in the liminal space and make inroads in the transfer of learning.

Research has investigated the degree of impact instructors have on student growth in these stuck places (Canter, 2016; Dweck, 2006; Earl, 2013). This study focused on the role of instructor as feedback provider. Using a qualitative case study approach, the following research questions were addressed.

1. What types of feedback occur in an online information literacy course for adult undergraduate students?

2. What perceptions do adult undergraduate students hold regarding how feedback influences their growth in the liminal space?

3. How do instructors describe their feedback style and beliefs regarding the role of feedback on the ability to transfer learning and growth in the liminal space?

Data collection. Data were collected from two sets of participants during the fall 2017 academic semester. Instructors were purposively selected for the study based on teaching assignments. Instructors teaching the course LIB 301 Information Literacy were faculty librarians with 2 or more years of online teaching experience. Prior to the study, instructors participated in a year-long, on-site professional learning community (PLC) study of the Framework, formative feedback strategies, and Dweck's (2006) Growth Mindset theory. Students in the study were randomly selected based on completion of the following assignments: PS1, PS3, Module 5 Reflection Journal, and Final Reflection Journal. Students enrolled in LIB 301 were nontraditional, adult undergraduates in DCP.

Eighty-four percent of the University's degree completion candidates are first-generation college students.

Data were collected and categorized into three data arrays. Data Array 1 were samples of feedback provided by instructors to students on the PS1 and PS3 assessments. Feedback samples were collected to determine the type of feedback that occurred in the course. Data Array 2 were student reflection journals from Module 5 and the Final. Reflection journal posts were collected to gain insight into student perceptions of where they get stuck in learning, what helps them to get unstuck, and their impressions from the feedback process. Module 5 and the Final reflection journals were selected to provide insight into student initial and cumulative perceptions of the feedback process. Data Array 3 was an open-ended questionnaire completed by instructors. The questionnaire asked instructors to share their perceptions on student entry to the liminal space, their feedback style, and the relationship between feedback and learning transfer.

Data analysis. Data collected in the study were analyzed using document analysis and coding. Coding was utilized to identify overarching trends and themes in feedback style, stuck places, and the feedback process. Each data array was coded using a combination of a priori and open coding with code checkers to ensure reliability of code application. Data arrays were analyzed as individual data sets to reveal larger trends in feedback style and perception. Data sets from each array were triangulated to answer the three research questions of the study. Table 28 demonstrates the alignment between research questions, instrumentation, analysis, and theoretical framework.

Table 28

Research Question, Instrumentation, Theoretical Framework Alignment

	Instrumentation	Analysis	Theoretical Framework Alignment
RQ1	Instructor feedback samples Student Reflection Journals Open-ended, online questionnaire	Identify the types of feedback occurring in the course. Observe the frequency of feedback types that align with supporting a growth mindset and transfer of learning. Compare feedback types to instructors' self-reported feedback styles and student-identified stuck places.	Evaluation of the frequency of feedback types provides additional insight into instructor and student perceptions of growth in the liminal space.
RQ2	Student Reflection Journals Instructor feedback samples	Analyze reflection journal in context to instructor feedback samples. Compare with the type of feedback that occurs within the course and look for correlations and disconnects.	Triangulation provides insight to how instructor feedback meets or does not meet the needs of students as they process through the liminal space.
RQ3	Open-ended, online questionnaire Instructor feedback samples Student Reflection Journals	Analyze questionnaire responses in context to instructor feedback samples. Triangulation provides insight to how instructors perceive the type and influence of the feedback they provide as it relates to actual feedback occurrences in the course. Compare instructor perception to student perception of stuck places.	Evaluation of these perceptions reveal micro-philosophies that instructors hold toward growth in the liminal space and concept mastery.

Implications of the findings and changes to practice are addressed in the next section.

Research Question 1

        Research Question 1. What types of feedback occur in an online information literacy course for adult undergraduate students? The following sections address implications and recommended changes to practice based on findings from Research Question 1.

        Implications. Entries into conceptual thresholds are unique to each learner (Rowbottom, 2007). Reflection journal data indicated students experienced a range of threshold entry points including the research process, evaluation of sources, crafting citations, and annotation writing. Feedback can be used to facilitate learning within the threshold, but not all types of feedback are effective in promoting learning transfer and mastery (Brookhart, 2008). Effective feedback is targeted and specific and provides pathways for improvement (Ambrose et al., 2010). Feedback collected in the study indicated that 64% of feedback provided to students was specific, while 36% was general.

        General feedback is defined as feedback that does not provide a pathway towards improvement. Figure 11 depicts the number of general feedback code occurrences.
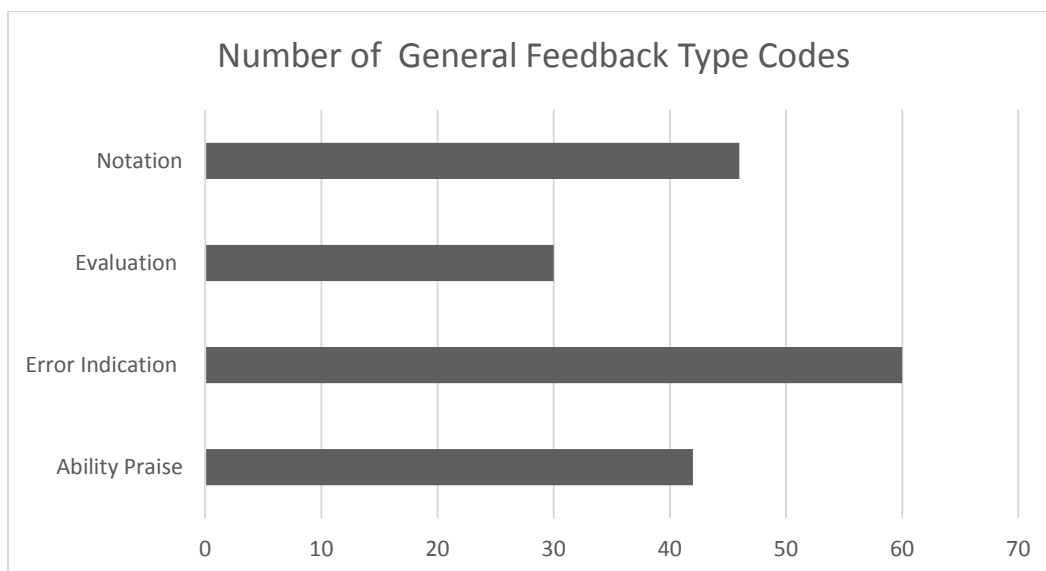
Figure 11. Number of Occurrences of General Feedback Codes.

Error Indication made up 34% of the General feedback code occurrences. Error

Indication was applied when instructors pointed out an error in student work without

providing a pathway to improvement. When occurring early in the feedback process,

Error Indication left students adrift and uncertain of how to correct mistakes. Void of

context, the student did not know why their work was evaluated as incorrect or bad;

research indicated that Error Indication fed fixed mindsets as students doubted their

ability to perform well (Dweck, 2007). Evaluation feedback, with a high rate of co-

occurrence with Ability Praise, was the least frequent form of feedback in the study.

Evaluative feedback indicated that the student had met the standard on the assessment.

Non-summative use of evaluative feedback "affects [students'] sense of themselves and

their position in relation to their learning, but it offers very little direction for moving

their learning on" (Earl, 2013, p. 99). Instructors in the study demonstrated an awareness

of only providing evaluative feedback as a conclusion to a series of feedback iterations.

Ability Praise, making up 24% of the General feedback, was applied when instructors

indicated the student did a good job without specifying why. The implications of Ability

Praise are discussed in Research Question 2.

Instructors in the study excelled at providing rich, detailed specific feedback to

students. Figure 12 depicts the number of occurrences of Specific feedback codes.
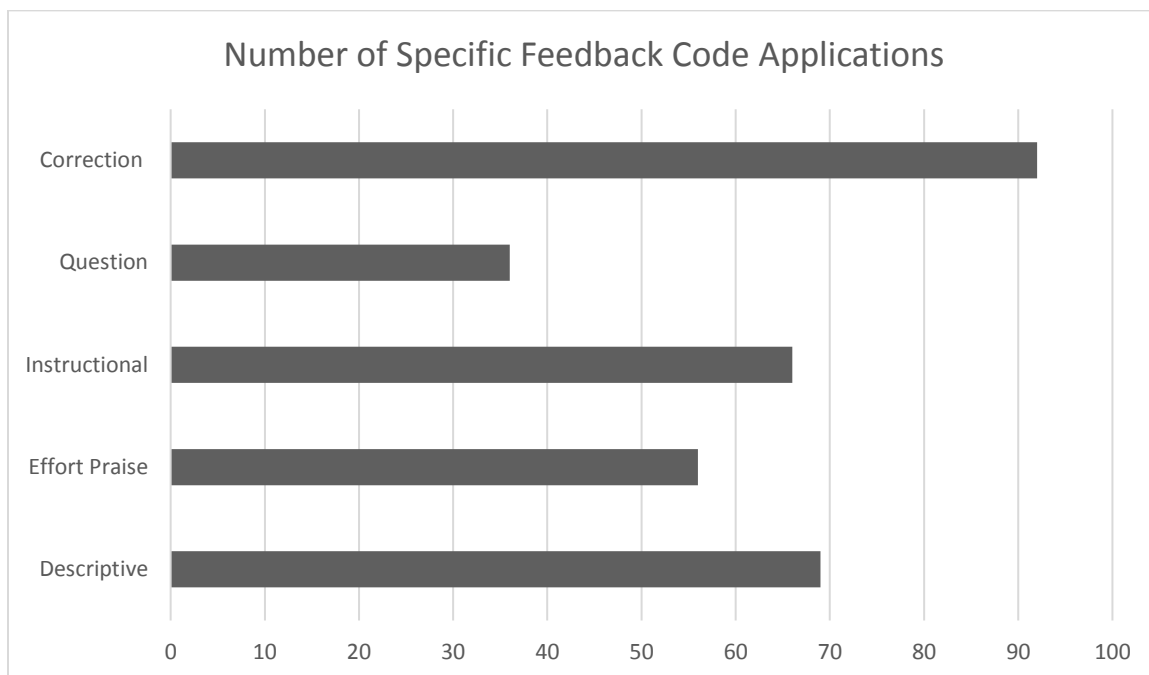
Figure 12. Number of Specific Feedback Codes.

Thirty percent of all feedback provided was corrective, meaning that instructors

provided an exact correction to an error in student work. Corrective feedback provided a

pathway towards improvement but did not necessarily support growth in the liminal

space. Research studies differentiate between feedback styles that support or stifle

cognitive processes (Brookhart, 2008; Hattie & Timperley, 2007). By providing exact

correction, instructors eliminated the students' need to problem solve. For example, one

instructor stated, "Italicize the source title and place in sentence case. Each citation

should have a hanging indent for the second and following lines. Highlight the citation,

right click, then select Paragraph. Under Special select hanging indent, the click OK."

Instructors should consider altering the feedback strategy by substituting corrective

feedback with instructive feedback. The student who receives the corrective feedback

mimics the correction, perhaps without understanding the error or the solution. This

action results in students being dependent on the correction rather than developing self-

regulation (Brown et al., 2014; Earl, 2013; Dweck, 2007; Meyer & Land, 2006).

PS assessments were designed to incorporate application and practice of multiple

skills and concepts. Assessment content priorities, based on Wiggins and McTighe's

(2005) UbD framework, are described in Table 29.

Table 29

PSs Aligned to UbD

Content Priority	PS Component	Percent of Grade
Big Ideas & Core Tasks	Source Type – Student selects the correct source type during the research process to use for the assignment. Annotation – Student writes a brief summary of the source and provides a robust evaluation of the source using the TRAP evaluation model.	60%
Important to Know and Do	APA Citation - Student constructs a correct APA citation for the source.	30%
Worth Being Familiar With	Formatting & Grammar – Student formats their submission following the assignment formatting guidelines and uses correct grammar and mechanics in their writing.	10%

Corrective feedback focused on skills-based in content, with 56% of the total

feedback addressing citation and grammatical errors. Instructor questionnaire responses

consistently described the feedback focus as citation and grammatical errors; this

perception is consistent with feedback occurrences within the course. Instructors

demonstrated a feedback comfort zone with addressing concrete errors with concrete solutions. The focus on citation and grammatical errors coupled with corrective feedback style was of concern as it shifted the learning away from the big ideas and core tasks of the assessment. This action sent mixed messages to students regarding the goals and objectives for the course (Ambrose et al., 2010). If feedback conveyed to students that the priority was citation style and grammar, students were likely to shift their focus away from the research process and evaluating sources.

Several factors contribute to instructor focus on corrective, skills-based feedback. Concrete errors are easy to identify and to provide specific feedback on, engineering confidence that a correct pathway to improve is provided. Feedback on conceptual errors, such as a weak evaluation of the source, is more subjective. Instructor questionnaire responses demonstrated a high concern for impacting student confidence leading to a reservation to respond to weaknesses with feedback that seemed abstract. Instructors demonstrated oscillation in feedback style and beliefs about the role of feedback in the liminal space. Oscillation is consistent with growth patterns exhibited by learners within the liminal space, indicating that instructors may be processing through their own conceptual threshold. This conclusion is discussed further in Research Question 3. Third, while student reflection and feed forward prompts had been utilized in the class before, this study is the first time the students were asked to identify where they got stuck in their learning. Figure 13 shows the results.
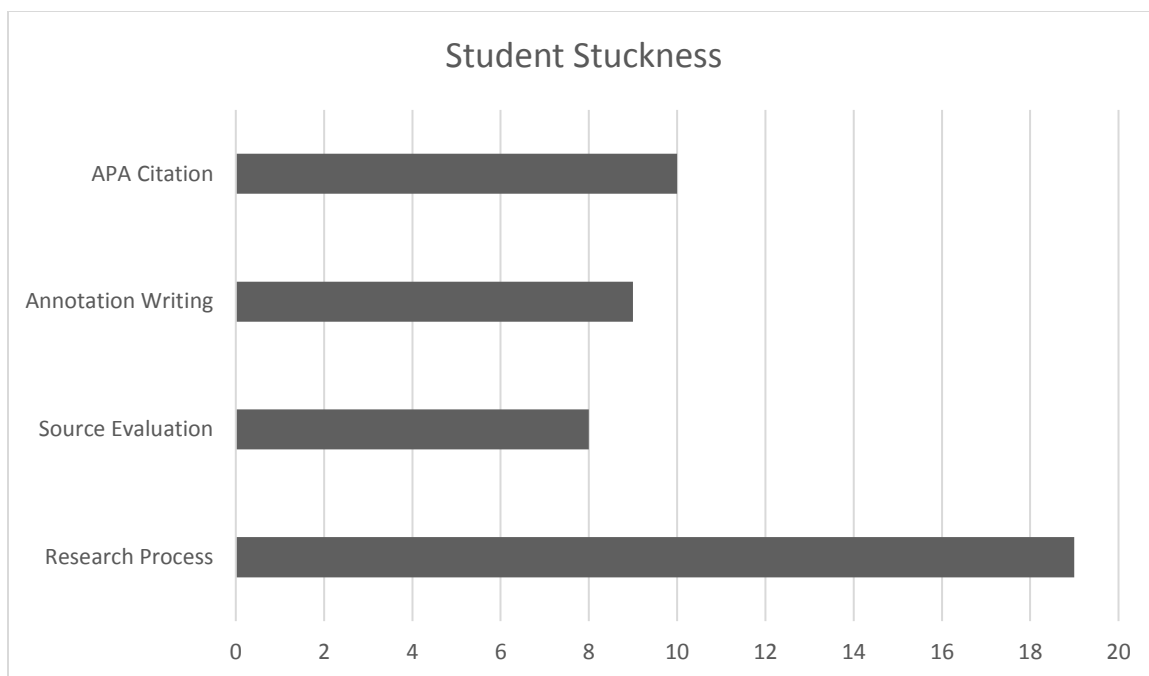
Figure 13. Stuck Places Reported by Students in the Reflection Journals.

While the number of occurrences of stuckness with APA Citations and source evaluation was expected, student stuckness with the research process was unexpected. This finding is addressed further in the next section.

Though occurrence of corrective feedback was high, each instructor in the course incorporated instruction and questioning techniques into the feedback style. This demonstrated that instructors were expanding the range of their feedback comfort zone. Instructive feedback guides students towards improvement, incorporating instructive tools and content, without providing an exact correction. Students are engaged in a "process of learning that fills the gap between what is understood and what is aimed to be understood" (Hattie & Timperley, 2007, p. 82). Instruction promotes practice and self-checking as students consider the error and utilize content to develop a solution. The process of practice and struggle can be frustrating for students and can cause a

questioning of inherent ability or intelligence (Dweck, 2006; Felten, 2016). Instructive

feedback aids in building conceptual understandings when students exhibit weakness

with complex assessments such as source evaluation and annotation writing. Canter

(2016) suggested telling students that the process of challenge and practice are normal,

encouraging the use of materials to help them solve problems. Instructive feedback

supports the challenge and encourages practice, fostering a growth mindset and self-

regulation (Ambrose et al., 2010; Brookhart, 2008; Dweck, 2006).

 Questioning, the least occurring specific feedback style, is the most challenging

type of feedback to provide (Black et al., 2003). Questioning generates conversation,

shifting student thinking from the task to the process of learning, ultimately leading to

transfer (Black et al., 2003; Brookhart, 2008). Task-oriented feedback limits the scope of

learning to the assessment; questioning shifts the feedback to how processes associated

with the task are approached. For example, the following feedback statement was

provided to a student in the course: "When using TRAP to evaluate the timeliness of the

source consider the age of the source (11 years) – what does this mean for this

information? Is this still useful to your research?" The student was asked to consider

questions pertaining to the evaluation of sources that can be applied to evaluative settings

(Black et al., 2003; Wiggins & McTighe, 2005). Black et al. (2003) stated, "Questions

are often devised to challenge misconceptions, to create some conflict that requires

discussion, or to explore ambiguity that needs clarification" (p. 39). While questioning

feedback challenged students, the style also challenged instructors. More effort is

required to craft an effective question that supports developmental understanding than

providing a corrective statement to a problem (Black et al., 2003). Feedback provided to

students in LIB 301 was highly descriptive and indicated that instructors devoted effort to

providing feedback. The lack of questioning feedback may be due to less experience and practice with this feedback delivery.

Recommended change to practice. PLCs are conducted at the site of the study to facilitate in-house professional development and improvement of instruction. PLCs provide teaming opportunities to generate shared ownership of decision-making, increased understanding of change, and commitment to follow through (Drago-Severson, 2009). The researcher recommends sharing the following data during PLC meetings: analysis of stuck places, occurrence of feedback style, and feedback content focus. Through the PLC, instructors can participate in group-reads, discussion, and practice workshops focused on feedback strategies. Instructors in the study have mastered providing descriptive feedback but need to practice shifting from corrective to instructional/questioning feedback.

Data indicated that feedback content primarily dealt with citation and grammatical errors. The ratio of feedback content should be aligned to the primary learning objectives, the Big Ideas, of the assessment. PS assessments were designed using the UbD framework and instructors were not part of the assessment development process. The researcher recommends the UbD framework and design be a focused PLC meeting, as UbD was a contributing framework to the Framework. The PLC would allocate time for workshopping so instructors can develop UbD-based assessments to implement in their face-to-face courses. This step would allow instructors an opportunity to understand and implement the design practices used in LIB 301 and the Framework in their own teaching.

Wiggins and McTighe (2005) stated that instruction should be built around learning problems. An unexpected discovery of the study was that while students

consistently selected the correct source type for a PS, students reported experiencing the greatest struggle with the research process. Student misunderstandings of the research process were hidden by the existing assessment practices within the course (Wiggins & McTighe, 2005). As a result of the finding, the researcher recommends a review and retooling of course content and assessment practices to support students engaged in the research process. PSs were used as evidence of understanding the research process; this idea is an incorrect assumption of the curriculum design as students are not reflecting or receiving feedback on their research practices. The researcher recommends the development of several low-stake assessment opportunities to gauge understanding of and provide feedback on the research process.

Research Question 2

      Research Question 2. What perceptions do adult undergraduate students hold regarding how feedback influences their growth in the liminal space? The following sections address implications and recommended changes to practice based on findings from Research Question 2.

      Implications. Feedback reception by the student is significant in determining the potential for feedback to influence growth and learning. Figure 14 indicates that students had an overwhelmingly positive reaction to feedback from their instructors.

Student Feedback Reaction

Category	Value
Non-Comment	7
Error Indication	20
Negative	1
Pathway to Improvement	21
Meaningful Interaction	9
Supportive/Encouraging	43
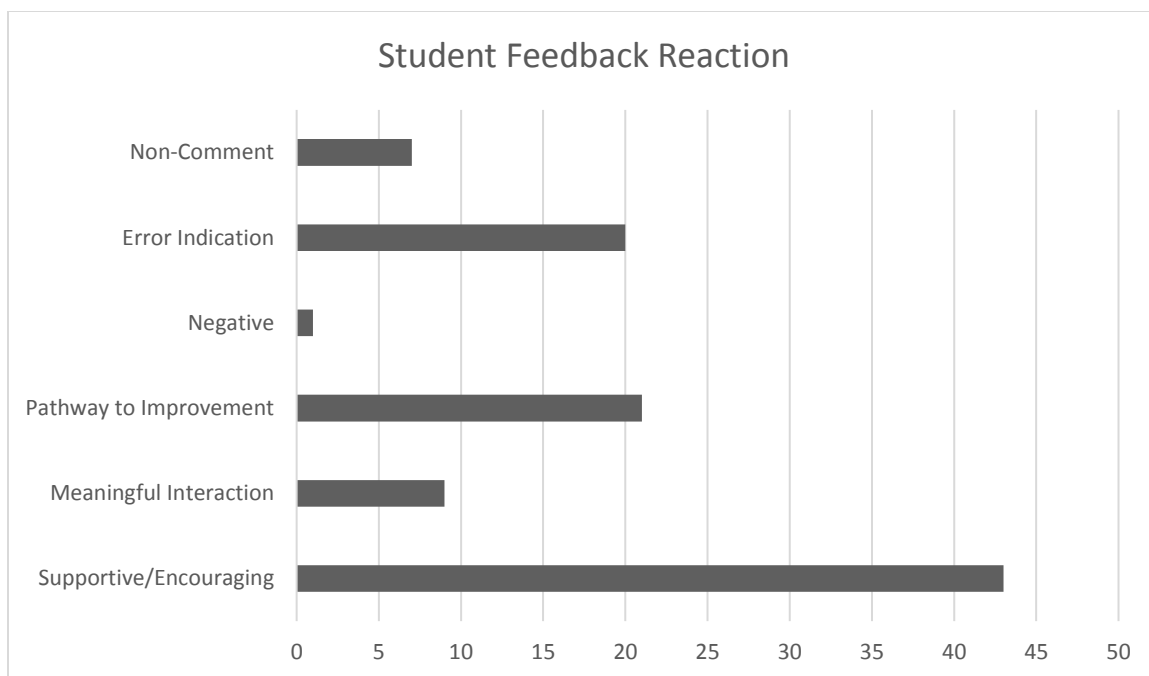
Figure 14. Student Reaction to Feedback from Instructors.

Students reported that feedback helped them begin to recognize their own errors, as Student 5.A stated, "I really enjoyed the feedback. I felt like it helped me learn how to look at things more closely, to pay attention to mistakes in the future and to fix them." Consistently, students described feedback as encouraging and supportive, which aligned with instructor awareness for how their feedback impacts student confidence.

Forty-seven percent of students stated that feedback was essential to their learning, further clarifying they appreciated having an opportunity to practice and improve. Feedback is a critical component in guiding improvement when practice opportunities have been provided. Error indication without context leaves students uncertain of how to make improvements and reframe conceptual understandings. Students often interpret stuck places as a reflection of diminished intelligence, feeding fixed mindsets that cast doubt on the ability to improve (Canter, 2016; Dweck, 2006).

Specific feedback can act as a catalyst, encouraging students to engage in liminal practice rather than rejecting the threshold concept. Canter (2016) suggested that instructors should embrace an active role as students enter thresholds, recognizing that their actions have both positive and negative effects.

Students reported feedback as a significant motivator to try again and practice. Effective feedback using tools and inquiry is critical to helping students solve conceptual challenges. Instructive and questioning feedback anchors assessments as the vehicle for learning, where the assessment is the process by which learning occurs (Earl, 2013). Feedback facilitates the development of self-regulation and adaptation strategies that assist students in transferring their learning (Brookhart, 2008). Successful transfer of learning involves adaptation and application of existing knowledge to a new setting, demonstrating understanding of a concept (Wiggins & McTighe, 2005).

Praise-based feedback is perceived as motivating and supportive of growth mindsets but can stagnate learning if not provided with care (Dweck, 2007; Parkes et al., 2013). Praise represented 20% of the total feedback in the study; 57% was effort based; and 42% was ability based. Feedback categorized as Effort Praise provided context detailing why praise was provided, while Ability Praise simply indicated that the student did a good job. Instructors utilized Ability Praise sparingly, often as a summative conclusion to a series of feedback transactions. Effort Praise had a wider range of implementation from "Good evaluation of the source using TRAP" to "Your annotation was well written and you included many of the TRAP method questions. I especially liked how you explained 'relevance' and how this particular article met your research needs." The first example borders on Ability Praise and holds little informational value to the student. The second example provides context to the process of evaluation and

annotation writing. Descriptive praise of effort can be used to identify examples of critical thinking in student work, supporting assessment learning outcomes with feedback content with high informational value (Hattie & Timperley, 2007).

Praise is frequently used to soften the delivery of a critical evaluation. This action is referred to as the feedback sandwich (Baeder, 2018; Henley & DiGennaro Reed, 2015; Parkes et al., 2013). Questionnaire responses and feedback samples indicated use of the feedback sandwich as common practice. The sandwich model offers appeal, but instructors should be aware of its potential for handicapping students (Parkes et al., 2013). Leading with praise prior to a critical error distracts attention from the error, often minimizing the significance of the conceptual misunderstanding (Baeder, 2018; Parkes et al., 2013). The ratio of praise to criticism is unbalanced and can set recipients up for shock in a summative evaluation (Baeder, 2018; Henley & DiGennaro Reed, 2015). Rather than leading with praise to soften criticism, Baeder (2018) suggested stating an observance followed by a question to promote further discussion. An example could be, "I notice you have only stated the article's publication date. To evaluate the timeliness of the article, have you considered whether newer research has been published?" This style of critical evaluation aligns with questioning feedback, which was an underutilized style of feedback in the course.

Recommended change to practice. Student reflection journals indicated that feedback was essential to their ability to improve. While instructors indicated awareness that students appreciated practice and improvement opportunities, questionnaire responses revealed oscillating beliefs on the role feedback plays in the process. The researcher recommends a PLC focused on praise-based feedback with guided reads and practice strategies for leveraging praise to increase transfer potential. PLCs are an

allocated time for teams to clarify the purpose of goals, initiate discussion, and celebrate improvements (Drago-Severson, 2009). Instructors could read, discuss, and build feedback strategies based on Hattie and Timperley's (2007) *The Power of Feedback*; Parkes et al.'s (2013) *Feedback Sandwiches Affect Perceptions but Not Performance*; and Dweck's (2007) *The Perils and Promises of Praise*. Instructors in the study are appropriately utilizing Ability Praise but should shift Effort Praise strategies away from the feedback sandwich in favor of Baeder's (2018) questioning style. A PLC would allow instructors peer-supported time to practice retooling sandwich style feedback samples into questioning statements, strengthening the connection between feedback and learning objectives (Black et al., 2003).

Research Question 3

Research Question 3. How do instructors describe their feedback style and beliefs regarding the role of feedback on the ability to transfer learning and growth in the liminal space? The following sections address implications and recommended changes to practice based on findings from Research Question 3.

Implications. Perceptions of student stuck places differ between students and instructors. Comparing these differences to the type of feedback provided reveals insight regarding instructor beliefs on the relationship between feedback and transfer in the liminal space. When asked to describe student stuck places, instructors demonstrated characteristics indicating that they were within their own liminal space. When questioned about stuck places in student learning, instructors identified *why* students got stuck in their learning, whereas students identified specific moments *when* they got stuck in their learning. Table 30 depicts instructor and student responses to identifying student stuckness.

Table 30

Instructor and Student Responses to Identifying Student Stuckness

Instructor Responses	Student Responses
College Readiness	Research Process
Student Confidence	Source Evaluation
Student Investment	Understanding Assignment
	Annotation Writing
	APA Citations

The disparity in response could be attributed to the fact that student reports were based on their current state of stuckness, while instructor reports were based on their long-range teaching experience. Instructor responses to student stuckness were limited, with only three of five addressing the prompt. Elaboration on student stuckness had the least descriptive responses from instructors.

Questionnaire responses addressing the relationship between the feedback loop and transfer of learning revealed oscillating beliefs on whether a connection exists. With the advent of the Framework, these librarians entered a conceptual gateway wrestling with troublesome knowledge in the liminal space. Though instructors participated in Framework and feedback-based PLCs and guided reads, shifts were still occurring in their own framework of understanding how these concepts are applied. Table 31 depicts instructor responses to the relationship between feedback and transfer of learning.

Table 31

Asterisk Indicates Reference to the Relationship Between Feedback and Growth

Instructor	Relationship Exists	Relationship Uncertain	Relationship Dependent	Process Learning
A	*	*	*	*
B	*	*	*	*
C		*		*
D	*	*	*	*
E	*			*

Previous research questioning the relationship between feedback and transfer indicates that students consistently report positive reaction to descriptive feedback from instructors (Gibbs & Taylor, 2016). Adult learners, who experience increased self-doubt, impostership, and insecurity, benefit from feedback as a means of increasing confidence (Brookfield, 2006; Coberly-Holt & Braun, 2016; Kasworm, 2008a). To support a growth mindset, feedback must extend beyond confidence building by providing substantive instructional content (Dweck, 2007; Hattie & Timperley, 2007).

Instructors come from a skills-based teaching tradition using the Standards, which predated the Framework. Mastery of the Standards was measured by completion of skills, not taking into account the stages of mimicry and regression experienced in the liminal space (Johnston & Webber, 2003; McCartney et al., 2009). By demonstrating the completion of a skill, it is uncertain if students were achieving transfer of learning beyond information literacy instruction. The Framework accounts for liminality, but assessment of this stage of learning is conceptually new to librarians. Librarians are new learners in a liminal state and "need supporting structures and rules to give them a framework for seeing patterns" (Earl, 2013, p. 88). The feedback loop can act as the supporting framework to aid librarians as they master formative assessment of student growth as opposed to one-shot skills mastery.

Findings from the study revealed a disconnect between the content of instructor feedback and the needs of the student. Instructors placed emphasis on corrective feedback dealing with citation and grammatical errors, while students reported feeling stuck in the research process and with source evaluation. Stuckness with the research process was an unexpected finding of the study, revealing gaps in curriculum and assessment design. The slanted feedback content focus on citations and grammar as

opposed to source evaluation revealed a flaw in the feedback loop. Figure 15 compares

the percent of feedback on source evaluation and citations compared to the indication of

stuck places.
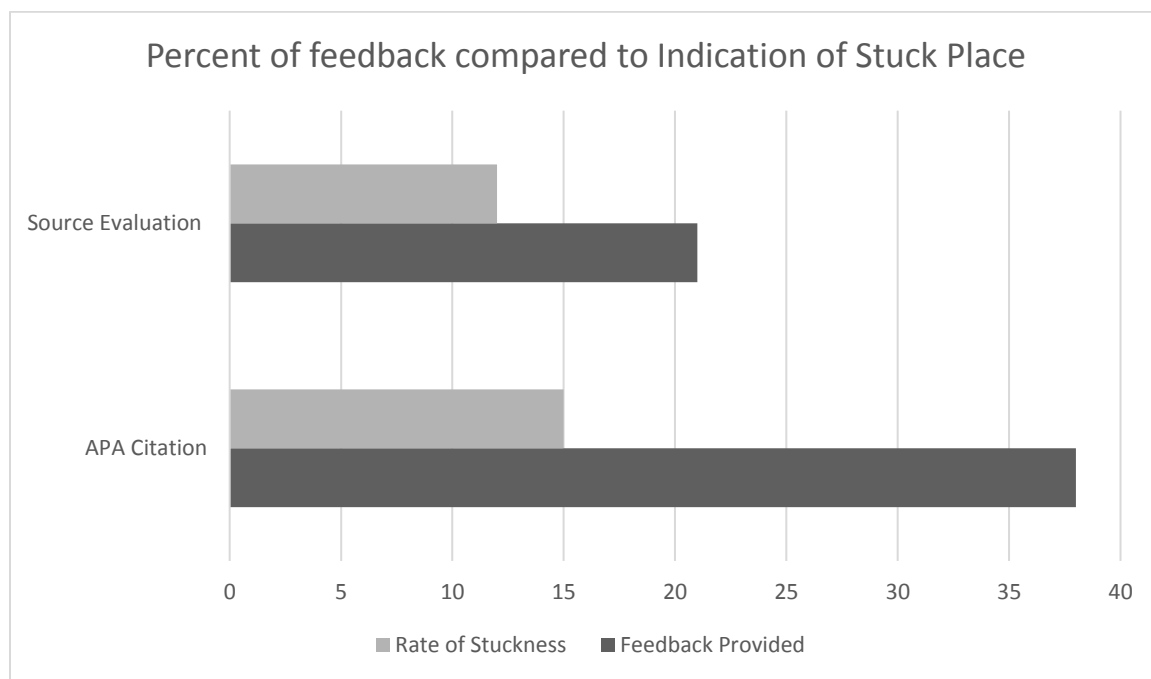
Figure 15. Percent of Feedback Compared to Indication of Stuck Place.

Findings indicate that students lacked confidence in their ability to evaluate

sources. In response, instructors should increase feedback supporting correct behaviors

recognizing student ability to apply a concept (Dweck, 2006, 2007).

The struggle for instructors is made complex due to the hidden nature of concept

mastery in student learning. Librarians come from a mastery culture where students

demonstrate mastery by completing a set of skills (Johnston & Webber, 2003).

Threshold concepts push mastery beyond the completion of a skill, instead requiring the

ability to transfer learning to a new setting (Meyer & Land, 2006). Mastery can occur

over an extended period of time, and some students will not achieve mastery in the

timeframe of the course (Cowan & Eva, 2016; Pinkley & Hoffmann, 2017). This lack of mastery does not mean that the teaching or the learning has failed but that students may exit the course without having exited the liminal space. This is an uncomfortable place for librarians and a point of controversy in applying threshold concept theory to library science (Wilkenson, 2014).

When transfer of learning lacks visibility, instructors are left uncertain as to the impact of feedback on student learning (Moore, 2012; O'Donnell, 2010). Students enrolled in LIB 301 are asked to engage with and apply multiple information literacy concepts. This opens the door to the possibility that students could be in a layered liminal space, wrestling with multiple points of troublesome knowledge. As students apply concepts and engage in the feedback loop, they oscillate between mimicry and understanding of a concept. Mistakes appear to be mastered but are then repeated, leaving instructors confused as to student understanding of the concept. It is at this point instructor feedback plays a critical role in moving students forward in the threshold.

Feedback in the threshold should be instructive, supporting self-direction by identifying error and providing tools or reflective questions to make an improvement (Black et al., 2003; Earl, 2013). Forty-seven percent of improvement-based feedback provided to students in the study was corrective rather than instructive. Corrective feedback weakens self-regulation and growth by providing exact corrections to errors, leaving the students reliant on the correction without understanding the process behind it (Brookhart, 2008). This action could account for the repetition of errors, as instructors were not devolving the improvement process to the student. This lack of passing off to the learner is a common misstep for those in an instructive role (Savin-Badin, 2006). Research suggests, however, that if instructors reduce corrective feedback in favor of

instructive feedback, patterns of student growth and ability transfer might become more apparent (Dweck, 2007; Earl, 2013; Hattie & Timperley, 2007).

Other factors contributing to the lack of visibility of transfer are due to course design and assessment practices. Near transfer, the application of learning to similar situations to the original learning, are difficult to distinguish due to repetition of student errors (Foley & Kaiser, 2013; Wiggins & McTighe, 2005). As instructors are engaged in the feedback loop, assessment practices have not required them to intentionally identify and track growth from one PS to the next. While instructors can readily recognize repeating feedback on the same error, it is more difficult to recognize when feedback on that error has ceased. Far transfer, the adaptation of learning to different situations to the original learning, is unknown to instructors (Foley & Kaiser, 2013; Wiggins & McTighe, 2005). Data collected in the study relied on students self-reporting the application of learning to other settings and reporting numbers were low. Self-reporting is also subjective and did not provide data on applications of knowledge beyond the course. Additionally, self-reports often refer to the intention to apply knowledge rather than the actual practice of applying knowledge beyond the course.

Recommended change to practice. Feedback is challenging to provide for those who have already crossed the threshold for the concepts being taught (Burkhardt, 2016). Findings indicated that librarians were further challenged as they were also within a liminal space as the feedback provider in the feedback loop. The researcher recommends a series of feedback-focused PLCs to support librarians in making the shift from corrective to instructive feedback practice. Through the PLC, instructors can analyze data from the study and practice modifying feedback style and discuss the implications of correction versus instruction and the implications for learning transfer. The visibility of

transfer is shrouded by the repetitive nature of the feedback loop. Instructors would be able to practice identifying growth and repetitive errors between PSs; discussing feedback strategies to solidify transfer and help students overcome stuck places. As feedback practices change, the researcher recommends repeating the study to investigate the relationship between the types of feedback provided, student perceptions of stuckness, and instructor perceptions of the impact of feedback in the liminal space.

Recommendations for Future Research

Based on the findings of the study, the researcher makes the following recommendations for future study.

Conduct CIPP evaluation. This case study was initially informed by a CIPP evaluation. CIPP evaluations are designed to implement change to improve current practice, aid in decision making, and measure quality assurance (Fitzpatrick, Sanders, & Worthen, 2011). The researcher recommends conducting the process and product cycles of a CIPP evaluation to assess changes to practice based on recommendations from the study. Conclusions from the study indicate that changes should focus on modifying practices on feedback and assessment and support for instructors in the liminal space. Instructors should affirm successful feedback strategies, use data to modify and strengthen feedback practices, and discuss implications associated with change. Repeating the study would strengthen the reliability of findings and allow for longitudinal tracking of trends on the relationship between feedback and transfer in the liminal space.

Support for librarians in the liminal space. Findings indicated that librarians are cycling through a liminal space as they understand, adapt, and apply the Framework in practice. Currently, there are no studies that investigate or acknowledge that librarians are situated within a liminal space while the Framework is processed, taught, and

assessed. Meyer and Land (2005) described the liminal space as a stuck place where learners are wrestling with their conceptual understanding of knowledge that is troublesome. Savin-Baden (2006) described this idea as a disjunction. Learners in this space display three characteristics: oscillation between growth, stagnation, and regression; strong emotions; and mimicry of concept mastery (Entwistle, 2008; McCartney et al., 2009; Meyer & Land, 2005; Savin-Baden et al., 2008). Instructors in this study exhibited these characteristics in their feedback practices and questionnaire responses. Instructors provided highly descriptive feedback, but the content was primarily skills based and corrective with occasional oscillation to instructive and questioning feedback. Instructors expressed multiple and conflicting beliefs about the impact of feedback on growth and transfer of learning in the liminal space. These different beliefs demonstrated oscillation between the stages of growth, regression, and mimicry of mastery.

It is important to determine how librarians cross the threshold and what structures exist to transform how librarians know, understand, and apply. Instructors participating in the study were highly active in professional development, participating in conference workshops and site-hosted PLCs. While this work fostered a collegial environment rich with exploration and discussion, it did not provide opportunities for practice with peer feedback. Drago-Severson (2009) stated that adult learning and development hinges on sustained mentorship. Future study should investigate the degree to which current professional development practices support librarian growth in the liminal space and leads to concept mastery in teaching and assessing implementation of the Framework.

Cycling through the liminal space is frustrating, emotional, and stressful (Felten, 2016). The process of providing substantive feedback with high informational value is

equally so, yet the emotional labor of providing this type of feedback by instructors has not been studied (Richardson et al., 2016). Emotional labor investigates the positive and negative emotional stressors that impact burnout and emotional exhaustion for service providers (Bishop & Mabry, 2016; McCann & Holt, 2009). Matteson and Miller (2014) referenced display rules, accepted expectations for actions and response, as a trigger for emotional labor. While display rules are often applied to face-to-face interactions, virtual transactions carry many of the same emotional burdens, as instructors must convey tone without facial cues (Bishop & Mabry, 2016). Instructors in this study indicated a concern for how their interactions through feedback affected student confidence and took care to mask frustrations associated with providing feedback on repetitive mistakes. Future study should investigate the degree of emotional labor instructors experience in providing students with substantive feedback.

Assessment for far transfer of learning. Measuring the far transfer of learning takes longitudinal study, which is often difficult in non-cohort student groups. This study was limited in measuring the far transfer of learning, as it was not possible to gather data on student learning beyond the boundedness of the course. To gather far transfer data at the site of the study, changes would need to be made regarding the institutional practice of data collection and analysis. Students participating in the study will complete a quantitative exit survey upon graduation from their degree program. The researcher recommends the development of a non-leading, qualitative question prompting students to reflect on applying concepts learned in LIB 301 to other courses of study during their academic careers.

Conclusion

Many factors influence growth and transfer of learning within the liminal space.

This study investigated the role of the feedback loop in the growth process. Substantive feedback that is both descriptive and instructive promotes a growth mindset and student engagement. This study indicated that instructors should modify feedback practices by reducing corrective feedback in favor of instructive and questioning feedback. To help instructors make this shift to instructive and questioning feedback, PLCs can be formed to assess trends in stuck places in student learning. This study also indicated that librarians are within their own liminal space as they develop new strategies for implementation and assessment of the Framework. Librarians and library associations should explore the potential for professional learning and training on Framework instruction to help librarians through their own threshold. As librarians continue to wrestle with the Framework, identifying liminality and patterns in growth in student learning can inform how we assess and teach for learning transfer and concept mastery.

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Appendix A

Alignment Table of ACRL Framework to LIB 301 Learning Outcomes

Alignment Table of ACRL Framework to LIB 301 Learning Outcomes

ACRL Framework	Student Learning Outcomes (SLO)	Module Learning Outcomes (MLO)/Multiple Outcome Projects (MOP)
Authority is Constructed and Contextual. Information resources reflect their creator's expertise and credibility, and are evaluated based on the information need and the context in which the information will be used.	**SLO 1.** Appraise and evaluate self-selected sources based on the reliability, authorship, purpose, and relevance as it pertains to your topic and research questions.	**MLO 5.1** Reflect on using the TRAP evaluation method to evaluate sources. **MLO 7.1.** Locate two websites, one you deem appropriate and one you deem inappropriate for academic research, and provide a rationale for why each website is appropriate/inappropriate in an academic context using the TRAP evaluation method. **MOP** – Practice Segments, Annotated Bibliography
Scholarship as Conversation. Communities of scholars, researchers, or professionals engage in sustained discourse and discoveries occurring over time as a result of varied perspectives and interpretations.	**SLO 2.** Engage in scholarly conversation by providing critical feedback to peers. **SLO 3.** Explain and demonstrate the characteristics of an information literate consumer of information, focusing on the ethical, legal, social, and academic use of information.	**MLO 1.1.** Identify the role information literacy plays in how you interpret information **MLO 1.2.** Discuss how it impacts your day-to-day life. **MLO 2.1.** Describe your past experiences with copyright and plagiarism and compare those to the information and concepts you viewed in the module. **MLO 2.2.** List tools that you can consult when faced with a copyright, plagiarism, or citation problem. **MLO 4.3** – Provide critical feedback to a peer on the Concept Mapping exercise following the Peer Feedback Guidelines. **MLO 5.2.** - Reflect on the process of completing, submitting, and reading instructor feedback for PS1.

MOP – Practice Segments, Annotated Bibliography

Searching as Strategic Exploration. Searching for information is often non-linear and iterative, requiring the evaluation of a range of information sources and the mental flexibility to pursue alternate avenues as new understanding develops.	**SLO 4.** Demonstrate the ability to conduct pre-research and advanced research through the combined use of keywords, concept mapping, Boolean operators, and limiters to locate information sources that help answer your research questions.	**MLO 4.1.** Design a research strategy by creating a concept map and keyword/keyword phrase list for your topic.

MLO 4.2. Research your topic in select library databases; locate additional keywords, facts, and ideas that tie in to your topic.

MLO 6.1. Construct, implement a database search using Boolean operators and limiter to locate a scholarly and non-scholarly article on your topic.

MLO 6.2. Reflect on the successes and challenges of implementing your search strategy in the online database.

MLO 7.1. Locate two websites, one you deem appropriate and one you deem inappropriate for academic research, and provide a rationale for why each website is appropriate/inappropriate in an academic context using the TRAP evaluation method.

MOP – Practice Segments, Annotated Bibliography |
| **Research as Inquiry.** Research is iterative and depends on asking increasingly new questions whose answers in turn develop additional questions or lines of inquiry in any field. | **SLO 5.** Create 2 – 3 research questions pertaining to a self-selected topic; modifying those research questions and search strategies based on feedback and evidence found through the research process. | **MLO 3.1.** Create exploratory research questions for your chosen topic.

MLO 4.1. Design a research strategy by creating a concept map and keyword/keyword phrase list for your topic. |

MOP – Practice Segments, Annotated Bibliography

Information Creation as a Process. Information in any format is produced to convey a message and is shared via a selected delivery method.	**SLO 1.** Appraise and evaluate self-selected sources based on the reliability, authorship, purpose, and relevance as it pertains to your topic and research questions.	**MLO 3.2, 5.3, 6.3, 7.2.** Examine and modify the components of an APA citation.
		MOP – Practice Segments, Annotated Bibliography
	SLO 3. Explain and demonstrate the characteristics of an information literate consumer of information, focusing on the ethical, legal, social, and academic use of information.	
	SLO 6. Differentiate between the various formats of sources and construct an APA citation for each source type.	

Appendix B

CIPP Evaluation of LIB 301

CIPP Evaluation of Practice Segment (PS) Assessments

CIPP Standard & Purpose	Evaluation of PS Assessments
Context (Planning) – "What needs to be done (Stufflebeam, 2007, p. 1)?"	LIB 301 instructors discussed the implementation of the PS assessments. Instructor listed specific areas of concern relating to students continued struggle learning and transferring concepts and skills. Identified areas of concern are students' lack of familiarity with the structure and process of creating an annotated bibliography and mistimed instructor feedback on the PS assessments.
Input (Structure and Design) – "How should it be done (Stufflebeam, 2007, p.1)?"	A module and supporting instructive guides were designed to develop students' understanding of the purpose, structure, and process of creating an annotated bibliography. To support critical thinking as part of scholarly writing, a step-by-step annotation writing guide was developed focusing on evaluating sources contextually using the TRAP evaluation model.
	A redesigned curriculum calendar and feedback model were implemented to improve the timing and quality of assessment feedback. Instructors participated in curriculum designer led training workshops to improve how feedback is delivered to students. Training focused on utilizing feedback as a learning strategy (Earl, 2013) and as means to support a growth mindset (Dweck, 2006).
Process (Implementation) – "Is it being done (Stufflebeam, 2007, p.1)?"	LIB 301 instructors shared perceptions regarding how providing additional context and feedback support on the PS assessments has impacted student learning. Instructors reported being able to more easily target and support struggling students earlier in the semester. Instructors reported that though students seemed to be improving, students' thinking is still unclear which makes it

difficult to determine if transfer is occurring.

Reflective journals were strategically added to the course in order to provide additional insight into how students are thinking. Instructors predicted that reflective journaling would provide a proactive platform for instructors to deliver customized support to struggling students. Reflective journals were used to gather students' perceptions of how the feedback process impacts their learning.

Product (Recycling) – "Did it succeed (Stufflebeam, 2007, p.1)?"

The investigation of this study was to determine the role of formative feedback in students' ability to transfer learning as it pertained to the evaluation of different types of information sources.

The research questions of this study are influenced by the product evaluation of the CIPP process.

Appendix C

Instructor Informed Consent Letter

Consent Form
Gardner-Webb University

TITLE OF STUDY

Exploring the Impact of Feedback on Learning Transfer in the Liminal Space for
Information Literacy

PRINCIPAL INVESTIGATOR

Natalie Edwards Bishop

PURPOSE OF STUDY

you are invited to participate in a qualitative research study investigating the potential
impact of formative feedback on adult undergraduate student's information literacy
learning. The focus of this study will be to identify how instructors and students perceive
the degree of transfer as it relates to the feedback loop. Data collection for this study
involves analyzing and triangulating instructor perceptions (open-ended questionnaire),
student perceptions (reflection journals), and feedback samples from practice segment
assignments. Please read the following information carefully. Please ask the researcher
if there is anything that is not clear or if you need more information.

DATA COLLECTION PROCEEDURES

1. Anonymous, online, open-ended questionnaire. Participants will be asked to complete
a questionnaire where they will share their thoughts and feelings about the feedback loop
and its impact on students' ability to transfer learning. The questionnaire will be
administered through a Google Form and no identifiable data will be asked of the
participants.
2. Student Reflection Journals. The researcher will collect reflection journal responses on
the Module 5 and Final reflection journals for six students in each participating
instructor's course. Students will be selected based on the following criteria: students
must have completed PS1, Module 5 reflection journal, PS3, and the Final reflection
journal.
3. Instructor Feedback Samples. The researcher will collect feedback samples on
Practice Segment 1 and Practice Segment 3 for each of the six students from whom
reflection journal responses have been collected.

CONFIDENTIALITY
Your responses to the online, open-ended questionnaire will be anonymous. Please do
not write any identifying information on your questionnaire responses. Responses will be
shared with an inter-rater to validate and cross check codes assigned in the document
analysis process.
Student reflection journals and instructor feedback samples will be anonymized in the

study. Responses and samples will be assigned an alpha-numeric designation that is in no way associated with or linked to an individual, section of the course, or CRN number. Identifiable information, such as names, included in responses and samples will be redacted. Responses and samples will be anonymously shared with an inter-rater to validate and cross check codes assigned in the document analysis process.

CONTACT INFORMATION

If you have any questions regarding the study, please contact Natalie Bishop by email, phone, or appointment.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, please sign your consent to do so below. Consent to participate includes taking the online, open-ended questionnaire and allowing the researcher access to your course in Blackboard to collect feedback samples and student reflection journal responses.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix D

LIB 301 Source Evaluation Guideline Infographic by Natalie Edwards Bishop

Timeliness

- What is the publication date?

- How long ago was it?

- Is this information current or has more research been done on this topic since the publication date?

Reliability & Relevance

- Who is the author/publisher? Why are they reliable?

- Are claims supported with research and/or facts?

- How does this help answer your research question? What new information or ideas does it add?

Audience

- What audience was this source created for?

- Is the information general or specific?

- What type of language is used?

Purpose

- What is the purpose of this source? (Research study, public interest, investigation, story telling)

- Is there bias or a point of view?

Appendix E

PS Grading Rubric

Criteria	Missing	Below Expectation	Approaching Expectation	Meets Expectation
APA Citation	Incorrect APA citation style or not in APA citation style. Includes 5 or more APA citation errors.	Partially correct APA citation. Includes 3 to 4 of the following mistakes: incorrect placement of citation components, capitalization, hanging indent missing, or source title not in italics.	Mostly correct APA citation. Includes correct placement of citation components, but 1 or 2 of the following are missing: correct capitalization, hanging indent, source title in italics.	Correct APA citation. Includes correct placement of citation components, capitalization, source title in italics, hanging indent, and retrieved from statement (if needed).
Annotation	Annotation is missing, incomplete, or does not meet the requirements of the assignment. See additional instructor feedback for further details.	Annotation is missing an evaluation of the source or the evaluation is mostly incomplete. See additional instructor feedback for further details.	Annotation is well written. Summary of the source is descriptive. (2 - 3 sentences) Evaluation of the source is present, but needs to include 1 - 2 more evaluation points to be complete. Should be 4 - 6 sentences.	Annotation is clearly written using good sentence structure and correct grammar. Summary of the source is concise and descriptive. (2 - 3 sentences) Evaluation of the source is thorough and includes at least 4 of the evaluation points. (4 - 6 sentences)
Source Type, Research Tool, Permalink	Missing source type, research tool used, and permalink.	2 or more mistakes involving source type label, research tool used, or permalink. See additional instructor feedback for further details.	Source type is correctly labeled and meets the requirements for the assignment. Appropriate research tool is used, but the permalink does not work.	Source type is correctly labeled and meets the requirements for the assignment. Appropriate research tool is used and the permalink works.
Formatting & Grammar	Does not follow any formatting guidelines.	Incorrect document formatting. AND/OR Spelling and grammar needs improvement. See additional instructor feedback for further details.	Mostly correct document formatting. AND/OR Grammar and spelling in the annotation needs improvement. See instructor feedback for additional information.	Document formatting matches the examples provided. Writing in the annotation uses correct spelling and grammar.

Appendix F

Module 5 and Final Reflection Journal Prompts

Module 5 Reflection Journal Prompt

This week, reflect on:

1. In what way has the TRAP evaluation method changed or influenced the way you might view and evaluate sources?

2. How confident did you feel about your PS1 submission before you saw your grade and instructor's feedback?

3. Did your feelings on how well you did change after you saw your grade and feedback?

4. What changes will you make going forward on future practice segments based on your instructor's feedback?

Final Reflection Journal Prompt

This week, reflect on:

1. How did you feel about the feedback you received on your PS assignments?

2. Did your feelings change as the semester progressed?

3. Do you have any suggestions for how feedback can be improved for LIB 301 students?

4. In what way did your thoughts on evaluating sources for the practice segment assignments change as the semester progressed?

Appendix G

Online, Open-ended Instructor Questionnaire

Online, open-ended questionnaire to be administered anonymously to instructors.

1. How would you describe the feedback you give to students? (For example, general, specific, corrective, evaluative, praise, Instructional)

2. How important do you think it is to give positive feedback? (e.g. "Good job!" or pointing out examples of strong critical thinking) Elaborate on your feelings about giving this kind of feedback.

3. In your opinion, what is the purpose of formative assessment? What has influenced your beliefs?

4. In your opinion, what is the purpose of feedback? What has influenced your beliefs?

5. In your opinion, does the formative feedback process have an impact on students' ability to transfer the IL concepts and skill they learn? Why or why not?

6. In your opinion, does the formative feedback process impact student growth in the liminal space? Why or why not?

Appendix H

Permission to use Questionnaire and Codes with Modification

Hello Dr. Bennett,

I am contacting you to formally request permission to use the following codes and open-ended questions from your 2016 research study *The impact of written feedback on gifted and high-ability learners: Perceptions of middle grades language arts teachers* with modifications.

The purpose of my study is to investigate the perceptions professors and students hold towards the impact feedback has on student ability to transfer learning. The open-ended questions will be used as part of a questionnaire sent to professors teaching our information literacy course this fall. The codes will be used to code samples of professor feedback on student work.

Modifications to any questions or codes will be included in red text.

Questions from Questionnaire

1. How would you describe the feedback you give to students? (For example, general, specific, positive, negative, ability/effort praise, corrective, evaluative, etc.)

2. How important do you think it is to give positive feedback (e.g., "Fantastic job!" or pointing out instances of strong critical thinking) to your students? Elaborate on your feelings about giving this kind of feedback to students.

7. In your opinion, what is the purpose of formative assessment?

8. In your opinion, what is the purpose of feedback?

Modified Codes for Feedback on Student Work

Feedback Code	Description	Example
Ability Praise	Professor praised student for ability (may or may not be related to task).	"Good!"; "Great job!"
Correction	Professor made a correction to grammar, mechanics, citation, or formatting in the student work.	Correcting capitalization in an APA citation, grammatical errors in the annotation, and incorrect document formatting.
Descriptive	Professor gives specific feedback about what the student did well, what the student needed to work on, and/or what steps the student may have taken to improve relative to the task.	"Good, concise summary of the article"; "When addressing the timeliness of the source you must evaluate the date of publication rather than simply stating the date (Is the source too old or does the age of the source provide historical context?)

Effort Praise	Professor praised student work while providing context to why praise was given.	"I like how you have identified the bias in this article and determined how that bias can be used to answer your research question."
Error Indication	Professor pointed out a student error without providing instructional/corrective pathway for improvement.	"APA citation is not correct"; "You have not addressed the reliability of the source in your annotation"
Evaluative	Professor evaluated student work based on a perceived level of performance on the task; indicating that student work meets the standard.	"Excellent evaluation of the source!"; "Good job on your formatting."
Instructional	Professor provided specific feedback intended to guide/instruct the student (may or may not be related to the task.)	"Use the APA Citation Guide and follow the article checklist to correct the capitalization in your citation"; "Provide examples for why this source is reliable to support your claim for reliability."
Notation	Professor requests or encourages the student to resubmit the assignment or to schedule a one-on-one meeting for deeper instruction.	"Please make changes and resubmit."
Question	Professor asked student a question related to the task.	"What evidence do you have to support this claim?"

If you grant permission and these are acceptable modifications, please indicate so by signing the bottom of this letter and returning it to me through email.

Thank you!

Natalie Edwards Bishop
Doctoral Candidate

Michelle S. Blanett
Signature for permission with approved modifications