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Designing for the One-Shot: Building Consensus on Design Processes for Academic Librarians

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DESIGNING FOR THE ONE-SHOT: BUILDING CONSENSUS ON DESIGN

PROCESSES FOR ACADEMIC LIBRARIANS

by

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ABSTRACT

DESIGNING FOR THE ONE-SHOT: BUILDING CONSENSUS ON DESIGN

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Old Dominion University, 2020
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Academic librarians have long been responsible for teaching information literacy competencies on college campuses, even as many are hesitant to accept the title of teacher. With inadequate instructional design preparation and one-shot sessions serving as a popular, if limited, instructional medium, librarians' design processes are often developed on the job and infrequently explored in the literature. Previous research has examined specific design models and instructional strategies, but no studies were found that determined how academic librarians select and implement these design decisions within the unique context of a one-shot.

The purpose of this study was to describe academic librarians' design processes in an effort to develop practical takeaways for training and design of one-shot sessions using the Delphi technique. This study was guided by three research questions: (a) How does previous professional training experiences regarding instruction prepare academic librarians for instructional responsibilities in designing one-shots, (b) What are academic librarians' preferred strategies and models for designing one-shot instructional sessions, and (c) How do academic librarians make design decisions when selecting strategies and models for one-shot instructional sessions? The questions were addressed through three rounds of surveys that led to a consensus among participants.

The results of this study indicated that academic librarians do find the master's education lacking in instructional preparation as consistent with the literature, and participants preferred

professional development that allowed for observation and direct experience. While participants described selecting instructional strategies based on the ability to engage students in a short period of time, consensus on specific strategies did not emerge outside of a reliance on demonstration. A significant consensus developed around the importance of objectives in making design decisions, and participants frequently relied on a backward design model for its ease of use, flexibility, and emphasis on objectives. Participants described a number of barriers inherent to the one-shot that impacted their design processes and led to modifications in their teaching.

To Joe—this dissertation is dedicated to you. Words typically come easy to me, but for this dedication, where would I even begin? To keep this shorter than the dissertation itself, it is because of you that I was able to survive both my graduate programs. I promise this is the last one.

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CHAPTER I

INTRODUCTION & LITERATURE REVIEW

Practitioners in the library and information science field have long prided themselves on the ability to transform in reaction to societal shifts in information consumption (Hofer et al., 2019). Academic libraries have been responsive to users' needs by replacing shelves upon shelves of books with group study spaces, computers, and digital collections (Association of College & Research Libraries [ACRL] Planning and Review Committee, 2019). Moving past the convention of libraries acting as nothing more than a repository of information, librarians have also adapted to swiftly changing service and staffing models, which has led to ever increasing expectations for librarians to step into the role of teacher (Kemp, 2006; Noe, 2013; Westbrock & Fabian, 2010). As a result, academic librarians across the United States fill positions that are either primarily dedicated to instruction or include instruction as one of a myriad of other responsibilities—even in roles without faculty status or that omit instruction in the job title (Reeves & Hahn, 2010). And, regardless of how much emphasis is placed on instruction, the teaching environment for academic librarians demand they act as the designer, instructor, and subject matter experts, duties for which many feel underqualified and underprepared to adequately perform (Julien & Genuis, 2011; Noe, 2013; Saunders, 2015).

This shift in responsibilities occurred at a time when navigating the increasingly complex information landscape has necessitated students, disciplinary faculty, and librarians evolve their understandings of the critical thinking competencies required for conducting research (Hofer et al., 2012; Koltay, 2011; Yadav, 2018). To this end, librarians have updated their instructional objectives in a diverse range of classrooms where students are called upon to recognize authority and credibility in various forms across ever expanding platforms and in complex contexts that

change depending on the information need and audience (ACRL, 2016). Developing these transdisciplinary competencies has taken on significant weight in higher education as learners frequently find themselves flooded with information at school, at work, and in their personal lives (Head, 2016; Koltay, 2011).

A new approach to the objectives when teaching these important competencies necessitated adoption of new instructional strategies, leaving academic librarians to act as both the instructor and instructional designer in highly unique design environments. Instructional designers routinely follow a set of guidelines to make pedagogical decisions and select strategies based on the specifics of a scenario. But assessment of curriculum in accredited U.S. master of library and information science (MLIS) programs has often been found wanting in preparing librarians for the instructional responsibilities required of academic positions (Saunders, 2015; Sproles et al., 2008). Without the necessary exposure to research-based instructional design models, librarians are often left to their own design processes (Booth, 2011). There has been limited research exploring how academic librarians select instructional models and strategies. By developing a consensus around how design judgments are made in real-life, complex environments, academic librarians can develop a better understanding of the instructional design strategies and models deployed in library instruction that are applicable to efficient, effective design. A more practical, streamlined approach to design could help librarians who might not fully identify with the teacher role feel more comfortable and confident in the classroom as they tackle the essential critical thinking skills required of research.

Literature Review

Information Literacy

For educators, there is a wide scope of literacies expected of their students. From functional literacy indicating students are competent in reading and writing to the emerging digital and computer literacies that reflect increased reliance on technology, the literacy spectrum includes essential competencies for lifelong learning (Lankshear & Knobel, 2008; McGuinness, 2006; Rader, 2002). Information literacy was added to this index of competencies when Zurkowski (1974) coined the term in a report to the National Commission on Libraries and Information Science, imploring the commission to prioritize "achiev[ing] universal information literacy by 1984" (p. 27). The initial description offered by Zurkowski defined information literacy in contrast to its absence:

> [Information literates] have learned techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems. The individuals in the remaining portion of the population, while literate in the sense that they can read and write, do not have a measure for the value of information, do not have an ability to mold information to their needs, and realistically must be considered to be information illiterates (p. 6).

Since the concept was introduced, professional organizations, researchers, and even governments have offered their own understandings of what being information literate looks like as a means of providing guidance to librarians' instructional activities. The American Library Association's (ALA) core competencies of librarianship outline how information literacy is taught in school libraries, public libraries, special libraries, and museums, as well as academic libraries (ALA, 2009). The setting for this study is in academic libraries and, therefore, this review will focus on

information literacy standards pertaining to libraries serving students who attend 2- and 4-year institutions of higher education. Table 1 summarizes frequently cited definitions of information literacy found in the English-language literature that serve an academic library audience.

Table 1

Frequently Cited Information Literacy Definitions from English-Language Organizations

Organization	Definition	Year Adopted
ALA	"To be information literate, a person must be able to recognise when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (p. 1).	1989
Chartered Institute of Library and Information Professionals (CLIP)	"Information literacy is the ability to think critically and make balanced judgements about any information we find and use" (p. 3).	2018
Society of College, National and University Libraries (SCONUL)	"Information literate people will demonstrate an awareness of how they gather, use, manage, synthesise and create information and data in an ethical manner and will have the information skills to do so effectively" (p. 3).	2011

Table 1 (continued).

United Nations Educational Scientific and Cultural Organization (UNESCO)	"Information literacy empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion in all nations" (para. 1).	2005

For the purposes of this study, information literacy will be defined using the standards set by ACRL, the branch of ALA representing academic librarians, which describes information literacy as "…the 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, 2017, para. 6). ACRL's most recently adopted characterization of information literacy was chosen as the operationalized definition for this study since it is the organization advocating for academic librarians and its parent organization, ALA, sets accreditation guidelines for U.S. MLIS programs.

Zurkowski's declaration of information literacy as a concept and his plea for establishing its importance was novel but did not emerge fully formed in his report without antecedents in established theoretical grounding from the field. Since the 1950s, librarians have studied and closely identified with the interdisciplinary field of information science (Brookes, 1980). Drawing on psychology, linguistics, and sociology to understand the information user as well as computer science and engineering to develop information discovery tools, the field has created

its own models of information-seeking behavior, such as Kuhlthau's (1988) Information Search

Process (ISP) model, that helped inform the adoption of information literacy as the field's

instructional objective (Brookes, 1980; Johnston & Webber, 2003; Lloyd, 2006; Rosman et al.,

2017; Saracevic, 2000; Webber & Johnston, 2017).

Beyond these theoretical underpinnings, the evolution of information literacy into its

modern conceptualization grew out of the bibliographic instructional tradition in libraries. Unlike

information literacy, bibliographic instruction centered on library skills—effective usage of

search tools, explanations of organizational strategies like the Library of Congress classification

system, and tours of the library building to orient students to the layout (Chakravarty, 2008;

Johnston & Webber, 2003; Lloyd, 2006; Rader, 1990). While this type of demonstration-based

training still plays a role in many modern libraries, the increased emphasis on critical thinking, or

the metacognitive ability of learning how to learn, as realized in instruction using the ACRL

definition of information literacy is reflected in the increased references to information literacy

in the literature (Pinto et al., 2010; Tokarz & Bucy, 2019; Townsend et al., 2011). This

understanding of information literacy has shaped librarians' approach to instruction, presenting

new challenges to teaching, as the field has embraced the interdisciplinary, critical thinking

framework (Bauder & Rod, 2016; Johnston & Webber, 2003; Leaning, 2019).

Transition from Standards to Framework

In parallel with this evolution of the information literacy definition, the guidelines for

teaching information literacy was undergoing its own shift. For 16 years, many academic

librarians set instructional outcomes based on ACRL's Information Literacy Competency

Standards for Higher Education (Schroeder & Cahoy, 2010). The Standards were created in

response to a 1989 ALA presidential report that made aggressive recommendations for the

promotion of information literacy. The clear, measurable objectives helped to communicate the practical benefits of an information literate citizenry (Jackman & Weiner, 2016). The Standards were influential for academic library instruction, outlining specific skills with detailed descriptions of behaviors that would determine if a student had met the criteria for being *information literate*. However, the Standards were not without critics who saw the positivist focus on the cognitive domain as too prescriptive and nonresponsive to changing philosophies in the field (Foasberg, 2015; Jackman & Weiner, 2016; Schroeder & Cahoy, 2010).

To determine if the Standards continued to meet the instructional needs of the field, ACRL created a review committee in 2012 that advocated for dramatic revisions in its theoretical understanding of information, information literacy, and pedagogy (ACRL, 2016; Foasberg, 2015). Drawing on Townsend et al.'s (2011) Delphi study where librarians identified the discipline's foundational concepts and questions, or threshold concepts, the Framework for Information Literacy for Higher Education was proposed as the Standards replacement in 2015 and adopted in 2016 as the professional guidance for developing information literacy practice. In format, the Framework was immediately distinguishable from the Standards, replacing the detailed objectives and corresponding learner behaviors with six frames, each matched to a set of knowledge practices and dispositions (ACRL, 2016). However, the changes were more extensive beyond this superficial formatting update, with the Framework relying on a constructivist learning perspective that grounded information literacy in a more complex view of the value of information and the disciplinary context of research (Foasberg, 2015). Additionally, it was made clear to academic librarians that the Framework would not provide easy answers in regard to the design of instruction, curricula, and assessments, placing the responsibility on librarians to develop their own based on the local campus culture (ACRL, 2016; Foasberg, 2015; Jackman &

Weiner, 2016). ACRL's information literacy definition highlighting more affective skills aligned with the Framework's values and allowed for different instructional approaches like critical information literacy (Bauder & Rod, 2016; Foasberg, 2015; Schroeder & Cahoy, 2010). But, just like with the Standards, the Framework has not been beyond reproach from academic librarians who have argued that the move away from measurable, standardized objectives makes it difficult to communicate the goals of information literacy instruction, furthering the divide between practitioners and the research and theory of the field (Foasberg, 2015; Jackman & Weiner, 2016). Since its adoption, academic librarians have targeted research efforts on how to best implement the frames in their instructional practices, frequently citing the limitations of one-shots as a challenge to embrace all the elements embedded in the Framework (Gross et al., 2018; Latham et al., 2019).

Value of Information Literacy Instruction

As the field began to shift toward new understandings and approaches to information literacy, futurist John Naisbitt (1982) wrote, "We are drowning in information but starved for knowledge" (p. 24). Naisbitt's assessment of the information literacy skills during the early 1980s predated adoption of the most powerful information discovery and creation tools, which suggests the flood has been exponentially increasing since that statement was made (Devakunchari, 2014). With instructional efforts focused on problem solving and metacognition, information literacy competencies are thought to combat this information overload, while also bolstering students' abilities to determine the quality of information sources, the scope of an information need, and the complex ethical challenges in the modern information landscape (ACRL, 2017; Bauder & Rod, 2016; Rockman, 2003; Townsend et al., 2011). Although they do not identify with information literacy as a term, even students and recent graduates have

identified information literacy competencies as essential to their undergraduate studies, employment prospects, civic engagement, and progression as lifelong learners (Head, 2016; Head & Eisenberg, 2010).

Accrediting agencies have also recognized how information literacy plays a role in student success, in and outside the classroom, with all six higher education accrediting bodies adopting information literacy standards (Grassian & Kaplowitz, 2009; Sonntag, 2001; Thompson, 2002). Outside of higher education, graduates find employers are placing increased importance on information literacy skills and employers notice employees are wanting in the ability to successfully look beyond the initial Google results to effectively find quality sources (Fourie & Julien, 2019). This difficulty transfers beyond educational and workplace contexts as well since disinformation, misinformation, and malinformation can spread virally disguised as truth, affecting medical, financial, or voting decisions with significant consequences (Cooke, 2018). Various stakeholders have recognized the increased significance of ensuring students engage with information literacy instruction in institutions of higher education (Cooke, 2018; Fourie & Julien, 2019; Grassian & Kaplowitz, 2009; Sonntag, 2001; Thompson, 2002). As such, librarians are uniquely positioned in higher education to reach out across disciplines to design and teach information literacy instruction as a means of addressing this need.

Information Literacy Credit, Embedded, and Individual Instruction Delivery Methods

Under the ACRL (2017) definition of information literacy—the operational definition guiding this study—academic librarians are tasked with providing instruction that promotes metacognitive skills while integrating problem solving competencies that allow for discovery and use of information. While academic librarians have been assigned instructional responsibilities for more than a century, adoption of information literacy represented a shift from

skills-based instruction to critical thinking (Rice-Lively & Racine, 1997). A change in content necessitated a significant modification to the teaching strategies employed for instruction, which overlaps with best practices of instructional design (Julien et al., 2018; Lloyd, 2006). Similar to the information science field, instructional design practitioners developed theory and models by borrowing from disciplines like psychology, management sciences, information technology, and education (Brookes, 1980; Richey et al., 2011) with the aim of making learning both efficient and effective. An explicit overlap between libraries and instructional design became clear during the 1960s when the American Association of School Librarians (AASL) adopted standards that clarified librarians' roles with audio-visual materials, prompting many librarians to join the Association for Educational Communications and Technology (AECT) (Small, 1988). Dale (1969), an influential educator and researcher in the audio-visual movement, also recognized that librarians should play a larger role in instruction beyond information preservation and gatekeeping traditionally associated with libraries. However, the historical partnership between these two fields did not develop a lasting formalized collaboration, particularly in academic libraries, as evidenced by the lack of integration into the MLIS curriculum or mention in current professional standards (ACRL, 2016; Booth, 2011; Saunders, 2015; Sproles et al., 2008). Despite this, researchers still cite instructional design elements as having a lasting impact on librarians' instructional practices in the three common delivery models: credit classes, individual instruction, and one-shot sessions (Booth, 2011; Bowles-Terry & Donovan, 2016; Bryan et al., 2018; Mery et al., 2012).

When R.C. Davis began providing user instruction at the University of Michigan in the 1880s, he became frustrated with the limited access to students and lack of follow-up inherent in his primary delivery method of one-hour lectures. To alleviate his dissatisfaction, Davis

developed the first known credit course focusing on bibliographic research skills, influencing an

entire generation of librarians' instructional approaches (Cisse, 2016; Jardine et al., 2018). For

many academic librarians, credit classes represent the preferred model of information literacy

instruction (Anderson & May, 2010; Badke, 2009; Mery et al., 2012). In a credit environment,

academic librarians assume the more traditional role of teacher, scaffolding content, developing

relationships with students, placing information literacy in a greater context, and evaluating and

assessing learning over the duration of a term or semester (Cisse, 2016; Jardine et al., 2018;

Mery et al., 2012). However, despite this general recognition in the field of the value of

delivering information literacy via credit courses, there has not been widespread adoption in U.S.

academic libraries. According to a survey from Cohen et al. (2016), only 19% of responding

institutions offered credit courses. Of this minority of libraries offering credit courses, the

institutions were predominantly larger, with more resources, and full-time equivalent enrollments

greater than 5,000 students (Cohen et al., 2016). The limited adoption of credit courses can be

attributed to frequently cited barriers: lack of faculty and institutional support, budgetary

restrictions, and the credit course being designated as an elective resulting in low enrollment

(Cohen et al., 2016; Jardine et al., 2018; Mery et al., 2012; Raven & Rodrigues, 2017).

An alternative model considered practically equivalent in efficacy to credit courses is

embedded instruction or information literacy across the curriculum programs (Anderson & May,

2010; Bowles-Terry & Donovan, 2016; Cohen et al., 2016; Van Epps & Nelson, 2013). The

appearance of the term *embedded librarian* in 2004 was relatively novel in the library literature

(Dewey, 2004), but the concept of integrating library instruction more deeply into disciplinary

curriculum is an established method in the field (Belzowski & Robison, 2019; Henry et al., 2015;

Hoffman et al., 2017; Ragains, 2012). Originally, embedded librarianship was intended to follow

in the direction of embedded journalists: living with a group as a means of observing and experiencing daily life along with the subjects in order to better understand their perspectives (Dewey, 2004). Embedded librarians were not in a high-stress environment like a war zone, but this initial conceptualization put librarians directly in the classroom, more fully integrated into the content, aware of the course context and students, in a better position to assess the impact of instruction, and provide instruction at the point of need when research questions arose. Eventually, embedded librarianship evolved to encompass a wide variety of activities, including multiple, scaffolded classroom visits, a virtual presence in a course's learning management system (LMS), development of research-specific tutorials, close collaboration with the instructor on assignment design, or a combination of any of the preceding strategies (Bean & Thomas, 2010; Belzowski & Robison, 2019; Dewey, 2004; Mullins, 2014). Academic librarians, unable to overcome the multiple institutional barriers to implement a credit course instructional program, have turned to embedded programs as a means of maintaining some level of instructional control commensurate with credit courses but that can be implemented with individual departments or faculty support (Cohen et al., 2016). However, similar to credit courses, embedded librarians have not become the predominant instructional delivery method in academic libraries as establishing the relationships necessary for such close collaboration can be difficult and time consuming (Carlson & Kneale, 2011; Thi Lan & Tuamsuk, 2018).

Beyond these more formal approaches, some of academic librarians' most common instructional interventions with students are individual interactions. Either spontaneous or through scheduled appointments, individual instruction or reference services can be meaningful to students when it comes at the point of a real information need. When students use a reference consultation, they recognize the librarian as an expert in the domain of information literacy and

are open to learning in a highly specialized context (Avery & Ward, 2010; Dempsey, 2017; Miller, 2018; Swoger & Hoffman, 2015). According to Cohen et al.'s (2016) survey, academic librarians recognize the value of this instructional opportunity as well, with 90% of respondents identifying individual instruction as a frequently utilized instructional method. And academic libraries are expanding opportunities for students to access reference and individual instruction by moving beyond just face-to-face offerings at the reference desk to chat, text, and video conferencing options, with equivalent returns on student learning and satisfaction (Desai & Graves, 2008; Hunter et al., 2019; Schiller, 2016).

Information Literacy One-Shot Delivery Method and Strategies

With all these options for instructional delivery models, there is one that is frequently cited, commonly deployed, and typically maligned by academic librarians: one-shot sessions. One-shot instructional sessions, or variations of them, have been a tool in U.S. librarians' instructional arsenal since before the Civil War (Grafstein, 2002). These instructional sessions can be delivered as a tour of the library, 50- to 90-minute lecture, or scavenger hunt centered on one research assignment (Anderson & May, 2010; Leahy et al., 2018). As a guest in a credit course, one-shot sessions are dependent on disciplinary faculty to invite the academic librarian to attend the class in addition to providing information about the course, assignments, and students (Anderson & May, 2010; Bowles-Terry & Donovan, 2016; Gardner & White-Farnham, 2013). Because of the limited information provided to librarians when asked to teach complex, critical-thinking competencies, these sessions present unique challenges that test academic librarians' instructional abilities. As a result, librarians have relied on established strategies in the field to ensure reliable outcomes from one-shot sessions. Table 2 summarizes these strategies, grounding them in instructional design principles that have been applied in other settings outside of

academic libraries. The strategies identified in Table 2 will be used in the development of the

study's surveys to determine if they are still relevant to academic librarians' design and

instructional practices for one-shot sessions. Additionally, using the identified strategies from the

literature as a foundation, academic librarians will discuss the design processes used to determine

when these instructional approaches are appropriate to employ in one-shot environments.

Table 2

Summary of One-Shot Instructional Strategies Grounded in Instructional Design Principles

One-Shot Strategy	Connection to Instructional Design Principles	Cited In	Findings
Discussion-based sessions using methods like Jigsaw Technique, Think-Pair-Share, and the Cephalonian Method	Cognitive-based generative learning strategies that allow for elaboration, comprehension, and recall	Buchanan & McDonough (2017); Hurley & Potter (2017); Leahy et al. (2018); Maybee et al. (2016)	Limited research available on efficacy of these findings beyond case study descriptions of design and implementation in one-shot sessions
Flipped classroom where students are provided information outside of the class and asked to apply information during a library lesson	Chunking content, scaffolding content, and more in-depth learner analysis allow for in-class time to be used for generative learning activities and assessment of performance through observation	Garvey et al. (2017); Låg (2016); Loo et al. (2016); Wegener (2018)	Included studies had a range of case studies and experimental studies; limited findings that showed a difference in learning, but did see improvements in student confidence and satisfaction

Table 2 (continued).

Interactive technologies (e.g., clickers, interactive white boards, polling software) to engage students in discussion and peer instruction	Knowledge checks as formative assessment; active learning if used to facilitate discussions and peer instruction	Chan & Knight (2011); Holderied (2011); Richards et al. (2018); Summey & Valenti (2013)	Included studies used case studies as well as quasi-experimental studies to compare control groups with no use of interactive technologies; mixed results in performance improvement but statistically more satisfied/engaged with the lesson
Lecture regarding information literacy concepts and demonstration applying concepts for research	Activation of cognitive processes through presentation of content and providing learning guidance as recommended in instructional systems design (ISD) models (e.g., Gagne's Nine Events)	Fluk (2015); Lacy & Chen (2013); Lopez (2018); Van Houlson (2007)	Included studies provided case studies that described design and implementation; findings suggest decrease in library anxiety without development of significant critical thinking competencies and importance of including strategies like research logs to engage students

Table 2 (continued).

| Problem-based learning that allow students to apply information literacy concepts to a real research need | Constructivist integration of concepts to real-world problems using active and cumulative learning techniques requiring metacognition | Angell & Boss (2016); Bielat et al. (2018); Cook & Walsh (2012); Diamond (2019) | Included studies provided case studies detailing how problem-based learning was selected and designed for the specific discipline, the experiences suggested students were satisfied with the instruction due to the perceived relevance |

In addition to these strategies deployed in the classroom, academic librarians have adapted instructional systems design (ISD) approaches as well as created their own models for use in one-shots and other instructional delivery methods. This has allowed a systematic approach to one-shot design beyond incorporating individual strategies on a case-by-case basis.

The use of ISD in the library literature has frequently manifested through applications or adaptations of the generic analysis, design, development, implementation, and evaluation (ADDIE) instructional design framework (Davis, 2013; Hess & Greer, 2016; McGowan, 2019; Mullins, 2014; Novitasari et al., 2018; Summey & Valenti, 2013). A well-known ADDIE variation is the library-specific interview, design, embed, and assess (IDEA) model that draws on instructional design principles for greater efficiency in classroom time management (Davis, 2013; Mullins, 2014; Summey & Valenti, 2013). More defined library instructional models include Booth's (2011) understand, structure, engage, and reflect (USER) method, which still cites ADDIE as the influential, underlying framework, but allows for more contextual and task analyses as part of the procedural steps during implementation.

Popular models grounded in the disciplinary research of information science rather than instructional design include the Information Search Process (ISP) model (Kuhlthau, 1988) and the Big Six model (Eisenberg & Berkowitz, 1990). Kuhlthau's work on information seeking led to her development of seven stages in students' learning of the research process: task initiation, topic selection, prefocus exploration, focus formulation, information collection, search closure, and starting writing (Kuhlthau, 1988). Each of these stages combines the affective, cognitive, and physical actions of students as they conduct research. Information literacy instruction using this model asks students to reflect on their search strategies as they walk through each of the seven stages (Buchanan et al., 2016; Wiley & Williams, 2015). Similarly, the Big Six model breaks down the problem-solving skills required for research into six stages: task definition, information seeking strategies, location sources, use of information, evaluation, and synthesize and organize (Eisenberg & Berkowitz, 1990). This model, though, is predominantly used in K-12 settings as a means of contextualizing where students are in the process of research (Kay & Ahmadpour, 2015). While ISP and the Big Six models approach the structure of an ISD method, they are strongly based in information seeking rather than designing instruction for learning, which makes it difficult to apply to one-shot settings (Neuman, 2011). Additionally, ISP and Big Six are unique among library models for being grounded in research, as there is limited literature exploring the efficacy of other, more design-based frameworks in library instruction modeled on ADDIE (Chu, 2015; Cruickshank et al., 2011).

While there are limitations in applying these models to one-shots they are frequently cited, which indicates a clear interest in systematizing one-shot information literacy instruction to improve the efficacy of this popular delivery method. The abundant studies in the literature exploring one-shot sessions focus on the question of efficacy, and consistently researchers cite

limited to no gains on pre- and posttests, graded assignments, or course grades between students who received one-shot instruction and those who did not (Badke, 2009; Jacobs & Jacobs, 2009; Mery et al., 2012). Academic librarians frequently express frustration at teaching such important competencies students will use while in school, but also in the workplace and as lifelong learners, with these restrictions and narrow returns (Badke, 2009; Booth, 2011; Bowels-Terry & Donovan, 2016; Ippoliti, 2018; Powell & Kong, 2017). There are frequent calls to end this instructional practice to ensure academic librarians are following sound pedagogical practice in all instructional offerings to deliver authentic learning experiences and allow for transfer to students' information-seeking practices across disciplines (Badke, 2009; Bean & Thomas, 2010; Belzowski & Robison, 2019). However, despite the limitations, one-shot sessions offer the opportunity to put librarians in front of students in a teaching role at a point when students have immediate information literacy needs (Belzowski & Robison, 2019; Bryan et al., 2018; Bowles-Terry & Donovan, 2016; Henry et al., 2015; Ippoliti, 2018; Mery et al., 2012). This accessibility was clear in Cohen et al.'s (2016) survey when 94% of respondents revealed one-shots remain their primary instructional option. Criticisms aside, this affordance of one-shots—as well as the difficulty in disrupting an established tradition in the field—is why they remain one of the most frequently deployed instructional tools in academic libraries (Bryan et al. 2018; Julien et al., 2018).

Academic Librarian Professional Development

Being familiar with various instructional design models to make sound pedagogical decisions is a serious challenge in one-shots without a complete picture of the instructional scenario. It is made all the more difficult by the gap in training for librarians. While professionals have long relied on instructional design techniques in the field, little has been done to fully

integrate these concepts into training and educational curriculum to prepare librarians for the classroom. When bibliographic objectives were more common in academic librarian instruction practices, ACRL defined a set of instructional proficiencies in 1985 as a means of helping U.S. MLIS programs develop responsive curriculum (Westbrock & Fabian, 2010). However, eight years after ACRL set the instructional proficiency standards, a survey of academic librarians still reported essential competencies like knowledge of learning theory and pedagogy as well as expertise in instructional design were learned on the job, when respondents would have preferred to have been exposed to these concepts during their graduate studies (Shonrock & Mulder, 1993).

More than a decade later, limited advancements were made to MLIS curriculum. According to Sproles et al. (2008), roughly half of librarians received no training to design information literacy instruction and less than a quarter were taught about learning theory as part of the required curriculum in U.S. MLIS programs. And, as information literacy has become more prominent in the literature, MLIS programs have not proactively responded by increasing exposure to instructional design models or creating multiple practice opportunities for teaching. According to a 2015 content analysis of required reference and/or instruction course syllabi in U.S. MLIS programs, instructional design was not mentioned as a topic in almost 40% of courses. And, in the same analysis, it was revealed that only 35% of MLIS programs included more than one instruction course in the entire curriculum (Saunders, 2015).

Librarians graduate with their MLIS believing they should have acquired more instructional proficiencies in their graduate programs than they did (Westbrock & Fabian, 2010). This lack of instructional training within the formal bounds of the MLIS curriculum has led librarians to turn to alternative professional development opportunities in more informal

environments. There are no continuing education requirements post-master's completion for academic librarians, yet the changing nature of information literacy and the need for on-the-job instructional training due to missing MLIS preparation, professional development is labeled as necessary, essential, and imperative in the literature (Alabi et al., 2012; Fitzgibbons et al., 2017; Venturella & Breland, 2019). According to Julien and Genuis' (2011) survey, respondents did not feel prepared for instructional responsibilities, and 88% addressed this hesitation via on-the-job, informal training. These responses demonstrate academic librarians enter the field without the proficiencies required to confidently enter the classroom to teach a one-shot, and so the expectation is increasingly placed on librarians to take professional development in their own hands (Westbrock & Fabian, 2010).

Gaps in the Literature

The professional expectation for academic librarians is that they are instructors—even for positions without instruction in the job title or faculty status (ACRL, 2017; Reeves & Hahn, 2010; Wheeler & McKinney, 2015). Despite this expectation, it is clear that librarians do not feel prepared to enter the classroom after completing the prescribed MLIS curriculum, particularly when it comes to teaching the uniquely challenging information literacy one-shots (Booth, 2011; Bowles-Terry & Donovan, 2016; Saunders, 2015; Sproles et al., 2008). While librarians frequently mention the failings of one-shots and benefits of other delivery models (Bowles-Terry & Donovan, 2016; Johnson, 2019; Scott, 2016), one-shots are still commonly cited in the literature and websites sharing one-shot activities and lesson plans are popular (ACRL Framework, 2016; Badke, 2009; Bryan et al., 2018; Community of Online Research Assignments, 2019; Tran et al., 2018). Much of the research in the library and information

science field is divided between dismissing one-shots as outdated and ineffective and providing case study or conference presentations of one-shot techniques and strategies.

For instructional designers, the influential work of Kerr (1983) helped identify how design models and prescriptive strategies influence the day-to-day design decisions of practitioners. There is no equivalent research agenda in the library and information science literature. For this review, searches for decision-making yielded results related to library strategic planning or student search strategies, but not regarding academic librarians' design practices. Evidence-based library and information practice (EBLIP) provides an alternative approach to librarians' search processes, which promotes decision-making based on "the collection, interpretation, and integration of valid, important and applicable user-reported, librarian-observed and research-derived evidence" (Booth & Brice, 2004, p. 17). However, EBLIP necessitates a strong research tradition to draw on in supporting evidence-based decision-making, and this is a well-known obstacle within the field and a critical divide between academic library practitioners and researchers (Booth & Brice, 2004; Cruickshank et al., 2011; Koufogiannakis, 2015; Koufogiannakis & Crumley, 2006). Additionally, the use of EBLIP in the literature has been cited in regard to all professional decision-making activities and has not been specifically adopted for instructional design judgements, particularly when designing for one-shot sessions (Koufogiannakis, 2015). Grounding a study in practical issues facing academic librarians even when maligned in the research—like the difficulties designing for one-shot sessions—using a well-designed research methodology could help bridge this gap in the literature as well as the divide between practitioners and researchers.

Conceptual Framework

Library and information science researchers frequently rely on neighboring disciplines to inform theory, which can expose internal weaknesses in the field while also embracing the multidisciplinary nature of information literacy and research content (Ocholla & Le Roux, 2011). In this same tradition and adopting a pragmatist paradigm that promotes the alignment between the gaps in the literature and the research design—or selecting the right tool for the right job—this study was framed by Simon's work on altering behavioral strategies to fit complex, artificial environments. Drawing on research in economics, engineering, cognitive psychology, instructional design, and even information science, Simon's perspectives on artificial systems, the process of design, and bounded rationality will inform the practical recommendations made by the researcher that balance the context of a one-shot environment with the appropriate procedural adaptation. As the aim of this study is to develop a consensus around design judgments in order to develop more efficient one-shot design processes, Simon's work is a suitable approach that will take into account the unique limitations of one-shots and the gap in instructional design preparation for librarians.

Artificial Systems

Simon (1996) proposed a distinction between the natural sciences and the artificial. Using Simon's definitions, the natural sciences are occupied with objects or phenomena in the world that lack human artifice while the artificial are synthesized phenomena in a system that are molded to the environment by function, goal, or purpose. These concepts are often used in reference to artificial intelligence, engineering, and economics, however, Simon (1990; 1996) also applies this characterization to the computational systems of human cognition, even referring to the memory as less a natural extension of the brain and more an artificial adaption of

the brain to its environment. By extending this understanding of the artificial to cognition, Simon (1996) centered the importance of objectives, writing, "A thinking human being is an adaptive system; men's goals define the interface between their inner and outer environments" (p. 53). The complexity of memory, and any artificial system, is a direct result of the complexity of its environment and, by extension, behavior is a response revealing a system's ability to adapt, or the inability to adapt, to this context.

This is an important takeaway from Simon's work because it can be difficult to find explanations or develop a detailed understanding of internal contexts that lead to adaptive processes fully accounting for all elements of a system. However, recommendations that specifically target system goals and the outer environment do not need that full internal insight to still serve a purpose. The lens of Simon's description of the artificial can serve a purpose in providing criteria for behavioral strategies that align the objectives to any environment, even those that are less than ideal, while also exposing internal conditions. Simon (1996) used the metaphor of a bridge to demonstrate how external testing can illuminate internal issues, writing, "Only when [the bridge] has been overloaded do we learn the physical properties of the materials from which it is built" (p. 13). When the strategies used to address the outer environment require a behavioral response not supported by the internal context, both internal and external functions fail. When applied to this study, the one-shot environment is an artificial system, less than ideal, but still serving a specific purpose for information literacy instruction. The recommendations for one-shot design developed by the researcher should focus on the external environment of the one-shot looking at adaptive processes and behavior unique to this context since the internal environment of the individual librarian will not be known.

Process of Design

In the realm of the artificial, Simon (1996) was concerned with synthetic and composed objects that are adapted to meet a need, which lead to his description of a designer who "is concerned with how things *ought* to be—how they ought to be in order to *attain goals,* and to *function*" (p. 5). With this perception of the designer, according to Simon, design itself is the process of "devising artifacts to attain goals" (1996, p. 114). Once again, Simon centered the importance of goals and objectives: in order for a design to shape strategies or actions intended to produce a desired behavior or performance the aim must be clear from the beginning. To align the design process to an appropriate course of action for the designer, Simon (1955; 1972; 1990; 1996) emphasized the logic of optimization methods. Ultimately, optimization in the context of design is a mechanism of adaptability in the face of uncertainty, particularly when the internal and external environments are not fully known. Borrowing Simon's (1990) metaphor of gelatin, to know the shape it will take when it solidifies, "we do not study the gelatin; we study the shape of the mold" (p. 6). By extension, to devise a problem-solving strategy, a designer considers the structure of the problem, which maximizes the impact of the external environment and minimizes the individual to settle on an optimal strategy. Rarely will this optimization be the same outcome as one made by a truly rational designer as uncertainty is common in most design scenarios, which is why Simon places such a premium on adaptive design processes that can be honed in to greater efficacy with experience. Within this conceptual framework, it will be productive for one-shot design development to look for what Simon referred to as optimal approximation, or the criterion imposed by academic librarians on their own design processes that simplify choices to develop a satisfactory one-shot environment.

Bounded Rationality and Satisficing

In addition to optimizing methods, Simon emphasized adaptability as being essential in the face of allocating scarce resources. Careful, exhaustive, systematic search for design solutions is not practical in the face of real-world contexts, particularly when knowledge, cognitive ability, and time are limited. Procedures that change when one or all of these resources are internally or externally inadequate are more manageable for a designer. To address the constraints of complex environments, Simon (1972) proposed the concept of bounded rationality. With this logic framework Simon (1996) wrote, "The bounds of human rationality are addressed by arranging decisions so that the steps in decision making can depend largely on information that is locally available to individuals" (p. 45). For designers, the quality of their product depends on what information is available, how much effort is committed to the design, and the amount of time allotted for completion. To provide a mental shortcut as a means of saving time and reducing effort, Simon (1972) described the "satisficing" heuristic as an attempt to apply a rational evaluation process to a reality-based problem:

> If the alternatives in a choice situation are not given, but have to be discovered or invented, and if the number of possible alternatives is very large, then a choice has to be made before all or most of them have been looked at…some criterion must be used to determine that an adequate, or satisfactory, one has been found…The Scottish word 'satisficing' (=satisfying) has been revived to denote problem solving and decision making that sets an aspiration level, searches until an alternative is found that is satisfactory by the aspiration level criterion, and selects that alternative (p. 168).

Simon (1990) concluded that a satisficing heuristic was not domain-specific and flexible for use in non-optimal settings, making it appropriate for application in multiple contexts. The use of

bounded rationality and satisficing can provide a helpful framework to understand and characterize the behavior and decisions of those performing complex tasks in complicated, real world environments.

When studying information literacy, librarians often place a focus on students and the heuristics they employ when researching. Bounded rationality and satisficing are referenced when discussing the shortcuts students make as they become overwhelmed with database interfaces and voluminous results and draw on complicated problem-solving strategies to search for information in a variety of contexts (Agosto, 2002; Barge & Gelhbach, 2012; Baskerville, 2018; Bates, 2009; Bawden & Robinson, 2008; Case, 2007; Head, 2009; Mansourian & Ford, 2007; McGeough & Rudick, 2018). When applied to students' research judgments and accounting for limitations of knowledge, cognitive ability, and time, bounded rationality suggests a student will find information by first determining how much effort should be allocated to the search and then settling on a satisfactory source after exerting the pre-determined resources (Barge & Gehlbach, 2012; McGeough & Rudick, 2018; Simon, 1990). However, these frameworks are not reflected back on librarians to consider where they turn for sources on professional knowledge and why, especially in regard to exploring design processes when developing one-shots. Given all the possible models and strategies academic librarians are exposed to, Simon's research suggests the computational effort required to examine all possible alternatives too overwhelming in a one-off instructional environment. Therefore, Simon's work in this area will be beneficial in reducing that burden while also finding optimal, efficient procedures for one-shot designs.

Statement of Purpose

Within the context of a one-shot session, the purpose of this study is to describe the design processes of academic librarians for information literacy instruction. Using the Delphi technique, the researcher will develop a consensus from experts in information literacy for making practical recommendations to be applied when designing one-shot instruction. The goal of this study is to better understand librarians' practices from their perspectives in order to better prepare future librarians for the responsibility of teaching the essential information literacy competencies during one-shot sessions.

Research Questions

To address this stated purpose, the following research questions will provide a frame for this study:

1. How does previous professional training experiences regarding instruction prepare academic librarians for instructional responsibilities in designing one-shots?

2. What are academic librarians' preferred strategies and models for designing one-shot instructional sessions?

3. How do academic librarians make design decisions when selecting strategies and models for one-shot instructional sessions?

Practical Significance

Information literacy competencies allow students to quality control the sources they use in research, respect intellectual property, and view the information architecture behind the discovery tools they use, along with other skills increasingly relevant in a digital society (Hofer et al., 2012; Koltay, 2011). As a result, information literacy is increasingly becoming an essential competency for college graduates (Anderson & May, 2010; Bryan et al., 2018; Koltay, 2011;

Roberts, 2017). Yet academic librarians are ill-equipped to facilitate learning this skill, particularly using a one-shot delivery model (Badke, 2009; Bowles-Terry & Donovan, 2016; Reeves & Hahn, 2010; Saunders, 2015; Sproles et al., 2008).

There are clear gaps in the literature about how instructional design principles are applied in librarians' design processes for one-shot sessions as well as how librarians learn to make these judgments. The immediate implications of this study will be in regard to the professional development of academic librarians looking to incorporate instructional design theory in their teaching methods. Practically, this will also better serve the students who would benefit from efficiently designed strategies and targeted instructional approaches. More broadly, developing design processes specific to information literacy one-shots that integrates best practices from instructional design has significant implications for the library and information science field. More research will need to be conducted to validate the findings, replicate results with a larger sample, and generalize to other environments. Further research could help provide support for incorporating instructional design principles into accredited curriculum to train future academic librarians.

CHAPTER II

METHODOLOGY

Within the context of a one-shot session, the purpose of this study is to describe the judgments academic librarians make when designing information literacy instruction. To answer the three identified research questions, the researcher will use the Delphi technique to develop a consensus from experts in information literacy for making practical recommendations to be applied when designing one-shot instruction. Data will be collected online from three rounds of iterative surveys and analyzed using thematic analysis during round one; measures of central tendency and measures of dispersion in rounds two and three; and an intraclass correlation coefficient during round three for confirmation of a consensus among participants. The goal of this study is to better understand librarians' practices from their perspectives in order to better prepare future librarians for the responsibility of teaching the essential information literacy competencies during one-shot sessions.

Research Design

The Delphi technique was established in the 1950s as a consensus building method enlisting the opinions of subject matter experts. The Rand Corporation developed the iterative survey design as a means for the U.S. Air Force to forecast technology applications in warfare during the Cold War (Keeney et al., 2011). With officers from various ranks represented in the multiple-round survey sample, the Air Force wanted to ensure participants responded honestly, without deferring to superiors or fearing repercussions for disagreement (Dalkey & Helmer, 1963). Subsequently, the Rand Corporation solved this dilemma with the Delphi method that attempted to control for power dynamics by collecting data anonymously, resampling the same participants, and allowing a consensus to emerge without one voice dominating the results

(Rowe & Wright, 1999). Grounded in the pragmatist writings of Dewey, the Delphi technique was a bridge between the more theoretical extrapolation methods of the time and a flexible research design that collected both qualitative and quantitative data, was inexpensive to organize and disseminate, and produced results that directly informed practice (Brady, 2016).

The Delphi technique became an accepted consensus-building method outside of military forecasting in fields like allied health, business, and education (Yousuf, 2007). The library and information science literature has incorporated this model into its own research practices, with one 2015 content analysis of three influential library journals citing Delphi as a popular emerging research design (Chu, 2015). An online search of the *Library, Information Science & Technology Abstracts* database found 51 peer-reviewed articles employing a classic, modified, or enhanced Delphi research design in the years since the content analysis was conducted. It has been embraced as an effective, flexible means of structuring communication when addressing complex, ill-structured problems (Linstone & Turoff, 2002). The practical nature of Delphi study results used to inform practice is due to its reliance on expert judgment since experts have both the theoretical understanding of a subject as well as first-hand experience with the topic (Donohoe & Needham, 2009). The ability to share this expertise anonymously while still having knowledge of group opinions to balance the consensus gives the results further weight (Rowe & Wright, 1999). Additionally, the method is convenient for researchers when facilitating group communication between participants who are geographically separated (Brill et al., 2006). For this study, each of these factors were determined to be appropriate to the research purpose given that a consensus on this topic has not previously been established and the expert opinions will be shared from librarians across the country (Keeney et al., 2011).

Participants

There are three essential groups that make up a Delphi study: decision makers, staff, and respondents. In this study, the researcher acted as the decision maker, responsible for the design of the initial survey as well as the revisions in later survey rounds based on the content and data analysis. The staff was an additional academic librarian, separate from the sample, who supported the work of the decision maker by providing feedback and controlling for bias. The respondents were the experts used for building consensus (Delbecq et al., 1975). The reliance on expert participants to gather consensus was essential for proper use of the Delphi method (Brady, 2016). The researcher ensured participants had the necessary expertise through criterion and snowball sampling (Hays & Singh, 2012). Skulmoski et al. (2007) recommend the following criteria when selecting participants for Delphi studies based on expertise: "i) knowledge and experience with the issues under investigation; ii) capacity and willingness to participate; iii) sufficient time to participate in the Delphi; and, iv) effective communication skills" (p. 10). To speak to participants' experience, the researcher recruited participants who also met the criteria that they v) worked at least three years in a position where they were directly responsible for teaching information literacy competencies in an academic library environment and vi) taught at least 100 one-shot sessions during that time. As the conceptual framework will be used for data analysis, knowledge of or expertise in Simon's research was not necessary for inclusion.

Participants were self-selecting volunteers with the ability to communicate in writing as required by the Delphi technique and participate in all rounds of data collection for inclusion in the analysis (Murray & Hammons, 1995). To account for participants' expertise, the researcher recruited participants via national academic library email listservs and social media. See Appendix A for the recruitment message. Those who responded to the recruitment message and

were interested in participating in the full study were asked to complete a short survey to clarify the study expectations and necessary time commitments (see Appendix B).

A total of 39 participants completed the participant interest and criteria survey. There were eight screening questions using the identified Delphi inclusion criteria. Based on these requirements, three participants were eliminated for not receiving an MLIS from a U.S. institution, and an additional 11 were eliminated for expressing insufficient confidence in their ability to communicate their design processes in writing. This left 25 participants who were responsible for teaching at least 100 one-shots, received an MLIS in the United States, responded "definitely" about their ability to express themselves in writing, and committed to the required time to complete all three survey rounds.

Participants were asked to specify the number of years of experience working in an academic library. A majority of respondents (52%) had nine or more years of experience in the studied environment. Table 3 summarizes participants' years of experience.

Table 3

Number of Years of Experience Working in an Academic Library (N = 25)

Years of Experience	Number of Participants
1-2 years	0
3-5 years	5
6-8 years	7
9 years or more	13

Participants were also asked to provide the year in which they graduated with their MLIS from an accredited U.S. program. This data was helpful to illustrate experience levels and as a means to establish the instructional MLIS curriculum fell within criticisms captured in the literature review. The most frequent graduation years among respondents were between 2010-2012 (40%). See Figure 1 for all participants' graduation years.
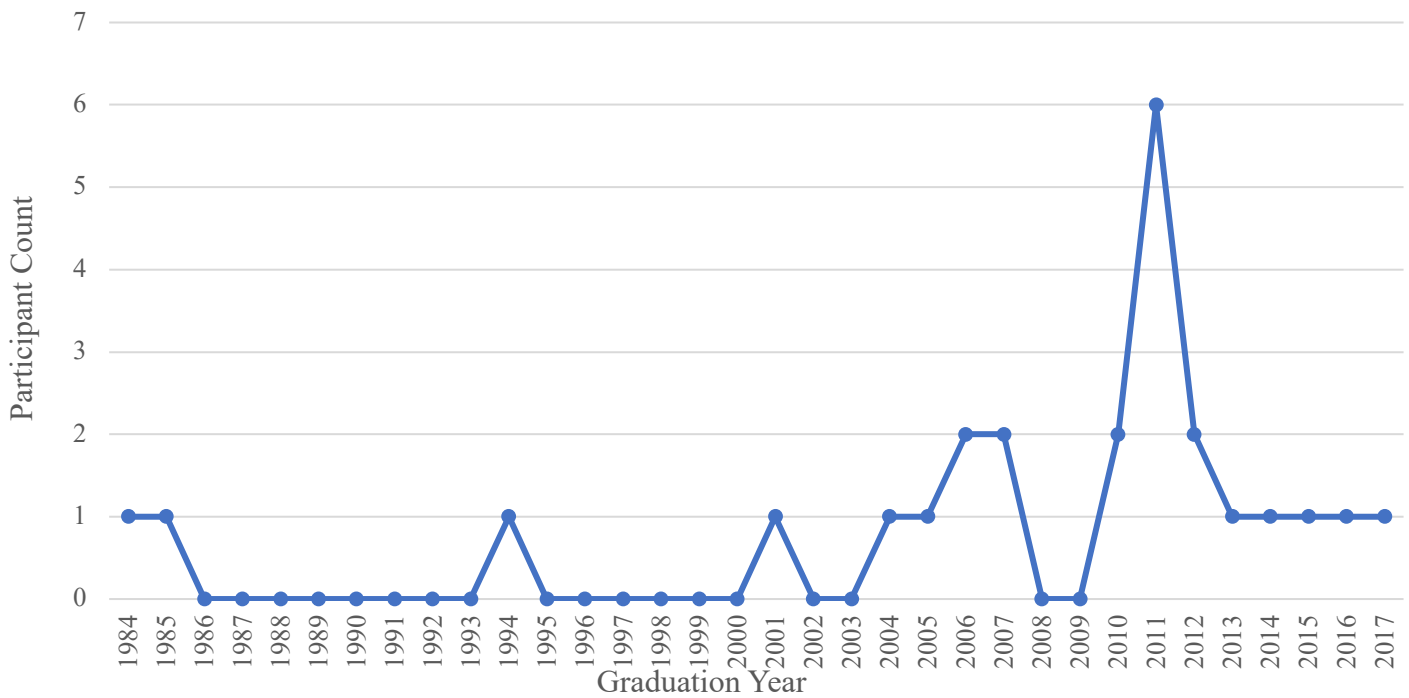
Figure 1. Graduation Years from U.S. MLIS Programs (*N* = 25)

No other demographic information was collected on the included sample as it was not relevant to the data analysis or study design.

While there are no clear requirements around the number of participants in a Delphi study, the average range is between 10-20. Larger sample sizes tend to be discouraged since the aim of a Delphi is not to provide statistically significant results and the smaller samples help avoid participant attrition and disagreements when seeking consensus (Nworie, 2011; Skulmoski

et al., 2007; Walker & Selfe, 1996). For this study, the recruitment goal was 20 participants. This allowed the researcher to create a safeguard against participants dropping out of the study before completing all rounds of data collection to ensure the sample size fit within this range of best practices. Table 4 summarizes the number of responses received for each survey round as well as the attrition rate between each round.

Table 4

Survey Responses and Attrition Rates for All Survey Rounds

Survey Round	Participants	Attrition Rate Between Rounds
Survey One	19	24%
Survey Two	18	5%
Survey Three	17	6%

While no individual round had an attrition rate above 30%, the overall study rate was 32% from eligible responses to the participant interest and criteria survey ($n = 25$) to the final sample responses ($n = 17$). This still fell within the accepted range of participants for a Delphi study (Nworie, 2011; Skulmoski et al., 2007; Walker & Selfe, 1996).

Setting

Following the classic Delphi method, which recommends maintaining anonymity between participants, this study collected data online (Rowe & Wright, 1999). All communications for recruiting the sample, screening participants based on established participation criteria, survey rounds, and member checking was conducted using participants' email addresses. The screening survey as well as the three rounds of consensus-building surveys

were developed using Qualtrics software and emailed directly to the participants using the tool's built-in email feature.

Procedures

After acquiring exempt status from the Human Subjects Committee of the Darden College of Education and Professional Studies at Old Dominion University, the researcher put out a call for participants using national academic library email listservs and social media. As part of the recruitment strategy, potential participants were asked to complete the participant interest and criteria survey to ensure they met the sample criteria and the expertise requirements of this Delphi study (Skulmoski et al., 2007).

The classic method of a Delphi study is conceptually organized in three phases: brainstorming, consolidating, and ranking. Brainstorming is the open-ended first round where all relevant factors are explored and gathered. In the second phase, responses are consolidated for duplication and to identify emerging themes. The last stage asks participants to rank identified factors based on validity and relevance to develop a consensus (Okoli & Pawlowski, 2004). This study followed the recommended structure with three rounds of surveys. All three of the defined research questions were used for developing the round one survey questions, and each of the research questions were addressed in the subsequent rounds of the study to develop a consensus regarding professional training, preferred strategies and models, and design processes. The round one survey acted as the brainstorming phase, using open-ended questions to allow participants to fully express their thoughts and bring up any factors they found relevant. The three research questions guiding this brainstorming were measured using the traditional Delphi approach to data collection: questionnaires (Keeney et al., 2011). This method allowed for responses to remain anonymous, which can control for unequal power dynamics, groupthink, differences in

professional or personal values, and relationships between participants in the sample (Brady, 2016). The round one survey was the longest survey in all three rounds, taking approximately 40-50 minutes to complete. The researcher gave participants a deadline of two weeks to submit responses. Once all participants completed the round one survey, the data was compiled and analyzed using descriptive and pattern coding, organizing descriptive codes into themes based in repeating ideas, terms, metaphors, participants' expressions, or identified gaps (Saldana, 2009). As recommended by Okoli and Pawlowski (2004), an additional two rounds of data collection followed this initial brainstorming stage. Figure 2 illustrates the stages of this study design to clarify the steps for each of the three rounds.
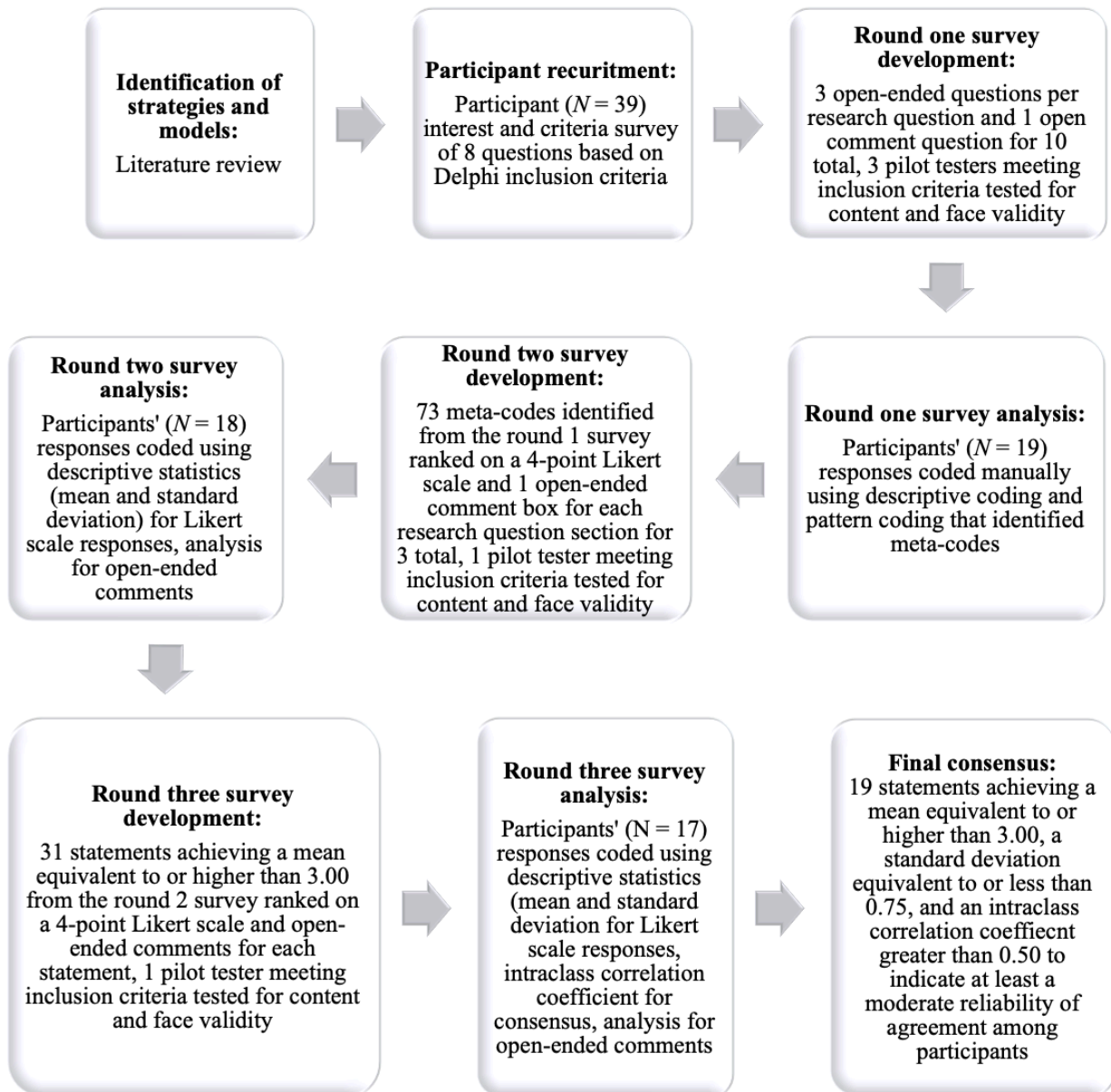
Figure 2. Description of the Study Procedures

It took the researcher approximately two weeks to code the data in order to derive questions for

the second-round survey. For the second survey, relevant themes related to the three research

questions that emerged from data in the first survey were presented to participants for feedback

and ranking. Continuing to follow the criteria of Delphi groups, with the researcher acting as the decision maker and the participants as the respondents, the researcher consulted the staff for feedback during second round survey development to ensure the researcher accurately interpreted data and controlled for any bias (Delbecq et al., 1975). As defined in the participants' section of this chapter, the staff was one academic librarian separate from the study sample who met the sample eligibility criteria. After developing the second survey, it was distributed to participants. As part of the consolidation phase of a Delphi study, the second survey acted as an opportunity for participants to member check the emerging themes. During the second-round survey, participants were also able to make revisions to the identified themes and provide explanations for any changes they would like to make for incorporation into the final survey. It took approximately 15 minutes for participants to complete the second survey and participants had a deadline of two weeks to submit responses. These responses were converted to numerical values and analyzed using descriptive statistics, identifying the mean and standard deviation. As this round was meant to identify an emerging consensus rather than establishing the final consensus, the researcher used less rigid requirements for statements to be included in the final survey round. This allowed participants to make comments on the final survey on the relevance or irrelevance of statements that were on the border of being eliminated. The benchmark for inclusion in the final survey were statements that received a mean score equivalent to or higher than 3.00.

The researcher analyzed responses from the second survey over the course of two weeks to develop the third survey. For this final round of surveys, the emerging consensus around design decisions and training was distributed to the expert participants along with the descriptive statistics and their own scores. Participants were given the opportunity to revise their responses

based on their knowledge of the group consensus. For the final round, it took approximately 20 minutes to complete and participants had a deadline of two weeks to submit responses. To determine what statements achieved consensus among participants, a more rigorous benchmark was used for the data analysis: a mean equivalent to or greater than 3.00, a standard deviation equivalent to or less than 0.75, and an intraclass correlation coefficient value greater than 0.50 to indicate at least moderate reliability of agreement.

It took three months for participants to submit responses to all three surveys and for the researcher to analyze data in order to develop the subsequent survey questions. All collected data was stored in a password-protected file. There were no anticipated potential risks or benefits associated with this study.

Instruments

The first-round survey was essential for establishing the themes that were used in the later rounds and, ultimately, for establishing the academic librarian decision-making consensus at the center of the study. As such, special care was given to developing this survey, particularly in accounting for internal validity and reliability. The first-round survey questions were aligned to the research questions so that each research question was measured by three items for internal consistency, resulting in nine open-ended questions addressing the study's purpose and one open question for participant comments for a total of 10 questions (Sullivan, 2011). To ensure the instrument properly measured the research questions, questions were developed using Leedy & Ormrod (2018) questionnaire guidelines and based in instructional models and strategies identified in the literature review (Angell & Boss; Booth, 2011; Buchanan & McDonough, 2017; Davis, 2013; Eisenberg & Berkowitz, 1990; Fluk, 2015; Garvey et al., 2017; Hess & Greer, 2016; Kuhlthau, 1988; Summey & Valenti, 2013). In regard to internal validity, this survey was

pilot tested for utility and clarity following human subjects approval (Hays & Singh, 2012;

Leedy & Ormrod, 2018). Prior to distribution to participants ($n = 25$), three academic librarians

who met the sample inclusion criteria completed the survey for content and face validity,

resulting in minor adjustments to question phrasing and formatting. A total of 19 participants

responded to the round one survey and moved on for inclusion in the second round of the study.

Responses were coded manually by first identifying descriptive codes grounded in the

participants' own words and then by using pattern coding to provide additional meaning,

identifying and organizing integrative themes that emerged from the data (Saldana, 2009). See

Appendix C for the round one survey instrument.

As Delphi studies use iterative surveys, the round two survey was derived from the first

survey's responses and the round three survey was derived from the second survey's responses.

The round two survey asked participants to rank all the identified themes from round one

according to the relevance to the participants' experiences (see Appendix D). Round three asked

participants to rank the top themes from round two (see Appendix E). The second and third

round surveys used a four-point Likert scale as the ranking scale. This was selected to allow for

ease of readability of the list of themes as well as to ensure that participants read all the available

themes rather than ranking the first options they encountered (Fowler, 1995). Before distribution

to participants, the second and third round surveys were sent to an academic librarian separate

from the sample for feedback to ensure the researcher accurately interpreted data and to control

for any bias (Delbecq et al., 1975).

Data Analysis

This study did not produce transferable results, but the aim was to develop guidelines for

academic librarians based on expert consensus. For round one, the researcher began with

descriptive coding, centering participants' authentic experiences using their own words. As described by Saldana (2009), descriptive coding identifies short phrases that encapsulate the topic of a passage, and this initial coding method summarized the essence of comments using topic descriptions as the foundational terminology to classify the data. The researcher started manually coding the responses as soon as participants completed their round one submissions by marking passages and making marginal notes on printed copies of the written surveys. A survey response was read in its entirety before the researcher began to mark the transcript, using a color-coded system to identify comments related to different research questions. The researcher used a line by line unit of analysis that sought to understand the design behavior, strategies, and rationale described by participants. The identified descriptive codes classified general patterns within a participant's submission and across all survey responses. This initial round of coding created the foundational vocabulary of the data used as the basis for further analysis. Analytic memos were kept as a reflective record of the data analysis and to assist with defining codes, documenting the researcher's thoughts, and registering emergent themes. The secondary coding method was pattern coding, which organized themes or constructs into "meta-codes" (Saldana, 2009, p. 152). The researcher developed these more meaningful pattern codes by organizing manifest and latent constructs clustered in participant responses. Once again, the researcher manually analyzed participant transcripts and the analytic memos to group codes related to the same theme across different participants' experiences. This process helped the researcher identify integrative themes emerging from the data to ensure similarly coded data were organized by meaning (Saldana, 2009). During this stage of the coding process, the initial descriptive codes aligned to the research questions were placed in a word processing document for classification and sorting. The pattern codes refined the descriptive codes to better identify the themes related

to the research questions and a usage description was developed to define how each code was applied to participant responses. The researcher re-coded the transcripts with the patterns codes to document the frequency counts of each theme. The table created to track the primary and secondary codes, code descriptions, and frequency mentions is available in Appendix F.

Responses to the second and third round surveys were analyzed using the median and mean as measures of central tendency and the standard deviation as a dispersion measurement (von der Gracht, 2012). As determined by the researcher, an emerging consensus among the expert participants regarding themes from survey two were established and included in the round three survey when they received a mean of at least 3.00 or higher on the four-point Likert scale among (Linstone & Turoff, 2002; Naughton et al., 2017; Nworie, 2011; von der Gracht, 2012; Walker & Selfe, 1996). This benchmark was lower than what was used to determine the final consensus to allow for statements on the edge of elimination to receive additional participant feedback, giving the researcher greater insight into what statements were and were not relevant. The final round responses that received a mean equivalent to or higher than 3.00 and a standard deviation equivalent to or less than 0.75 were also analyzed using SPSS software to determine intraclass correlation coefficient, where $ICC = 0.00$ indicated no agreement and $ICC = 1.00$ indicated perfect agreement. To ensure the group achieved consensus, the researcher looked for a value $0.50 < V \leq 0.75$ among the third survey responses to indicate at least moderate reliability of agreement among participants (Brender, 2006; Koo & Li, 2016; Linstone & Turoff, 2002; von der Gracht, 2012).

Limitations

The findings of this study could be beneficial to the field and help prepare librarians for designing one-shot information literacy sessions. However, as with any study design, there are

expected limitations inherent to the nature of a Delphi study. The practical takeaways that emerged from the consensus of the expert participants did not generate theory, so there are restrictions in how the findings can be applied. As there are too few participants to create statistical power with the study's conclusions, the results will be an estimation of what the larger population might conclude. The consensus reached in the findings is not accurately representative of academic librarians and, therefore, is not transferable to a larger population. For the data analysis, the literature recommends use of thematic analysis, however, there is not much guidance in what this process looks like in practice, which made it difficult to develop the surveys for subsequent rounds (Brady, 2016). Because of this limitation, it was essential for the researcher to select participants with the appropriate expertise and validate the emerging trends through each round. Additionally, the analysis method used to determine if a consensus was achieved is based on the researcher's definition, which acts as an underlying assumption of this study (Linstone & Turoff, 2002; Naughton et al., 2017; Nworie, 2011). While the researcher established clear boundaries in selecting the sample of academic librarians by requiring participants have an MLIS from an accredited U.S. program with at least three years of experience teaching one-shot sessions, there is no clear definition of what qualifies as expertise for consideration in a Delphi study (Skulmoski et al., 2007). As such, an assumption of this study is the identified inclusion criteria ensured participants were experts in information literacy.

CHAPTER III

RESULTS

Research Question One: Previous Professional Training Regarding Instruction

Round One Survey

In the round one survey, participants were asked three questions aligned to the first research question regarding instructional training (see questions one, two, and four in Appendix C). However, as all questions were open-ended and could be related back to professional development, all responses were analyzed for themes relevant to research question one. See Appendix F for the complete list of pattern codes identified in the round one survey along with a description of the code usage and frequencies. Additionally, the qualitative comments afforded by the Delphi methodology were essential to this analysis, so key quotes provided by participants that informed the identification of emerging themes are available in Appendix G.

While all three research questions received equal weight in the survey, professional training and development received the lowest frequency of mentions during the first round. Despite this, clear preferences emerged for professional development mediums that participants turned to for support as they developed their instructional abilities in regard to teaching one-shots. Attendance at conferences and collaboration with colleagues both appeared as the leading themes addressing the first research question. As participants were recruited from all over the country, several regional conferences were referenced in addition to national professional organization conferences like the annual ALA and biennial ACRL. Responses referencing conferences spoke to the inspirational nature of attending sessions where librarians could be exposed to innovative strategies and instructional approaches that could be easily tweaked to better suit individual contexts. Many participants also saw conferences as a way to extend

conversations that were happening among colleagues, initiating collaboration locally and then enhancing the strategies by grounding them in pedagogy learned from conference sessions. Collaboration and conferences were closely associated among participants as campus-specific work informed conference proposals and conference sessions, in turn, informed individuals' instructional activities.

In addition to other academic librarians, participants saw collaboration as an opportunity to learn from colleagues outside their department, such as disciplinary faculty and instructional designers. Collaboration was considered so fundamental to professional development that many participants described it as "essential" to their own practices. The caveat to this outlet was based on institutional support and interest among peers, with some participants describing previous experiences foundational to their development as instructors that was not replicated in other contexts or when they transferred to new positions. However, respondents still frequently sought out interested peers for collaborative professional development opportunities throughout their careers due to the value they placed on this medium.

Various techniques were mentioned as necessary for instructional training beyond the MLIS curriculum, regardless if participants identified the MLIS as preparing them for instructional duties or not. Those who felt the MLIS was not sufficient for teaching one-shots were in the majority, aligning with the results of the literature review. Of the 11 mentions coded as Outside MLIS, nine were explicit in the lack of instructional preparation, responding to the question about how well prepared for one-shot teaching they felt after graduation with some variation of "Not at all." Those participants who felt more comfortable entering the classroom straight out of their MLIS program attributed this to certain classes but were less explicit in their praise. For those who were exposed to instructional strategies and models in the MLIS

curriculum, most participants mentioned that specific classes and experiences were useful, particularly in regard to creating and assessing learning outcomes, but still felt the need for additional professional development outlets following graduation.

Round Two Survey

Drawing on the 73 total meta-codes identified from the round one data analysis, 16 statements were aligned to the first research question and participants were asked to rank these statements on a four-point Likert scale during round two. Participants also had the option to provide comments about the relevance of these 16 statements to their own professional development practices. See Section One of the Round Two Survey in Appendix D for the survey questions relevant to research question one. A descriptive summary of results from the round two survey is denoted in Appendix H.

Participants' qualitative feedback from the first survey were largely practical in nature, supporting conference attendance and collaboration among colleagues as primary instructional professional development outlets. While the more practical statements were ranked higher in relevance to participants' experiences overall in the second survey, the highest ranked statement in this section was in regard to needing more training opportunities to bolster their understanding of pedagogy ($M = 3.67$, $SD = 0.59$). Participants recognized the various mediums were essential precisely because there was a gap in their training that needed to be addressed once they entered the classroom.

The contradictory themes regarding the usefulness of the MLIS curriculum that emerged in the first round of the survey with almost equivalent frequencies developed a greater distinction in this survey. Those participants who found the MLIS prepared them for instructional responsibilities ($M = 1.83$, $SD = 0.92$) were in the minority in comparison to those who aligned

with the literature review findings of the lack of readiness after graduation ($M = 3.28$, $SD = 0.89$). The professional development mediums participants most frequently turned to for further development beyond the master's education were largely solo activities, such as through the experience of teaching in the classroom ($M = 3.61$, $SD = 0.61$) and reading the professional literature ($M = 3.33$, $SD = 0.69$). This was a departure from the first round qualitative responses that emphasized more collective sharing of resources in conferences and among peers. However, in the open-ended comment text box, participants only drew attention to the importance of collaboration ($M = 3.22$, $SD = 0.89$), which was largely dependent on institutional context, with one participant writing, "Current co-workers and faculty development resources are not a source for collaboration regarding instruction, but prior jobs have had those resources available." Another response highlighted developing those collegial relationships particularly when more formal collaborative opportunities were not available, writing, "We don't have a Center for Teaching and Learning at my institution. Although I rely on webinars, they are definitely second to relying on collaboration with colleagues." Other statements involving the importance of colleagues outside one's own institution for professional development were also ranked highly enough to be included in the final survey, like networking through professional organizations ($M = 3.33$, $SD = 0.84$) and communications via listservs ($M = 3.00$, $SD = 0.59$).

Round Three Survey

The third survey round of this study narrowed the statements for a final ranking in order to establish a consensus among participants. Those statements ranked with a mean equivalent to or higher than 3.00, equating to the "Very true of my experiences" and "True of my experiences" ratings, demonstrated an emerging consensus for continued inclusion in the study. The exclusion criteria resulted in the 16 statements aligned to the first research question in round two to be

reduced to eight statements incorporated into the final survey. Those eight statements were once again ranked on a four-point Likert scale, and participants were presented the mean score rating, standard deviation, and the participant's own rating from round two and given an open comment box following each statement to provide a rationale for inclusion or exclusion from the consensus. See Section One of the Round Three Survey in Appendix E for the survey questions relevant to research question one. The descriptive summary of all responses to the round three survey is available in Appendix I.

Between the second and third rounds, half of the statements aligned to the first research question were cut for not reaching the minimum mean benchmark ($M \geq 3.00$). The areas of emerging consensus regarding professional development confirmed the round two results that emphasized practical mediums since a majority of participants felt the MLIS was insufficient in providing one-shot classroom training. The pragmatic nature of highly-rated statements continued, with participants ranking experience with successes—and failures—in the classroom as the most relevant statement in the final survey ($M = 3.65$, $SD = 0.61$).

The participants were given an option to comment and provide additional thoughts on every statement in this survey as a means of member checking the statements that would be included as the final consensus. Themes relying on experience and peers that rated highly on the Likert scale were also frequently mentioned in participants' written answers. In response to the statement that experience in the classroom was essential to professional development, one librarian wrote, "How else would I learn! I think simply practicing and doing the thing is one of the best ways to develop skills." While experience was foundational to training, this experience was primarily earned using the medium most accessible to academic librarians: "One-shots are the core and nearly the entirety of my instructional experience." This could be limiting when

looking for new strategies and expanding pedagogical approaches, which is where peer observation could fill gaps, even informally:

> I do less formal peer observation than I'd like—it can be hard to schedule. But I always have the course instructor in the classroom when I am doing a one-shot, and I take that opportunity to observe how they develop rapport with students, or what strategies they use to communicate effectively.

In addition to using the one-shot session itself as a chance to observe peers, participants also mentioned workshops, conferences, and formal evaluation programs in their departments, which could lead to greater collaboration with other librarians.

> Each of the librarians I work with on a daily basis at my campus have creative ideas, and share their problem solving and near misses in the classroom. We encourage each other to share both successes and less than successful strategies. We debrief frequently…We each have very different talents regarding communicating with students, and faculty liaison, so new ideas are popping up all the time.

Based on participants' responses, this type of collaboration was helpful even when librarians' specialties, institutions, or student experience levels differed.

Research Question Two: Preferred Strategies and Models for One-shot Design

Round One Survey

For the second research question, there were also three questions on the round one survey that asked participants about what instructional strategies and design models they used for one-shots (see questions three, five, and seven in Appendix C). The same procedure was followed for this analysis as for the first research question where all open-ended questions were analyzed for themes relevant to research question two. See Appendix F for the first-round pattern codes along

with a description of the code usage and frequencies. Key quotes that informed the researcher's analysis and exemplified the pattern code descriptions are found in Appendix G.

There were increased frequency mentions of themes regarding research question two as opposed to themes relevant to the first question. In regard to design models, participants clearly expressed preference for one dominant model—Backward Design—for one-shot processes over the more frequently cited models found in the literature review, such as USER and ADDIE. In addition to explicit discussions of Backward Design, some participants described a natural design process aligning with the model that read like a definition of Backward Design straight out of Wiggins and McTighe (2005) but without making any direct mention of the model's name. Even when participants did not explicitly identify Backward Design, descriptions of design processes that followed this approach were attributed to this meta-code.

In regard to strategies, predominant methods mentioned by participants were split between group activities focused on individual, student-centered goals. Additional strategies discussed in the literature were evident in participant responses, such as flipped classrooms and problem-based learning, but student centered, group activities, and lecture and demonstration were the themes that received the highest frequency mentions. As defined by the theme description, student-centered strategies included activities that allowed one-on-one work between the teaching librarian and students or activities that were led by examples generated by the students themselves, while group activities were strategies that paired students into groups greater than three. The more traditional lecture and demonstration strategy identified in the literature review was also prevalent among participants. These three themes were often mentioned in conjunction with each other, with participants recognizing that one-shots incorporating multiple strategies were useful for engaging students even with limited class time.

Often student-centered, group, or lecture and demonstration strategies served as the foundational activities and librarians would add in additional approaches as time, student interest, and student abilities allowed.

Round Two Survey

Of the 73 meta-codes described by participants in round one, 23 statements identified specific instructional strategies and design models related to the second research question. Participants were once again asked to rank these statements on a four-point Likert scale (see section two of the round two survey in Appendix D) as well as given an open-comment text box at the end of the second section to provide additional commentary about how the statements related to their own practices. A descriptive summary of results from the round two survey is available in Appendix H.

During the round one survey, the themes aligned to research question two received numerous frequency mentions. However, participants did not easily arrive at consensus in round two and there was large variance in participant rankings. With participants disagreeing on the frequency of strategy and model usage, a total of 20 statements of the original 23 statements were eliminated for not receiving a mean equivalent to or greater than 3.00, equating to the "Every time" and "almost every time" ratings, resulting in only three statements included in the third survey. Of these statements, Backward Design ($M = 3.33$, $SD = 0.97$) was the only model that saw agreement, receiving the highest rankings among participants and described as an essential framework to approach one-shots due to its emphasis on learning outcomes.

Demonstrations ($M = 3.28$, $SD = 0.75$) and independent search time with one-on-one support from the teaching librarian ($M = 3.00$, $SD = 0.91$) were the only strategies recognized as relevant among a majority of participants, though the means were not significantly above the

minimum required ranking to progress to the next survey. In this section's open text box for comments, one participant wrote that the strategies were hard to select and the models felt irrelevant since, "…our instruction is so formulaic that I seldom engage in one-shot design beyond selecting a particular activity that seems to fit the class and its assignment, and the time allotted." Having little latitude to be innovative in the design limited the strategies and models that resonated with participants' everyday processes.

Round Three Survey

The second section concerned with specific instructional strategies and design models had the greatest reduction in statements between the second and third rounds, with an 154% reduction from 23 statements to three. Responses had the greatest variance as participants found that it was difficult to consistently rely on the same strategies and models, adapting their approaches more frequently to better align the one-shot instruction to their institutions, teaching styles, one-shot contexts, and individual experiences. For the final survey, the statement receiving the highest ranking was demonstration ($M = 3.53$, $SD = 0.51$) as a useful instructional strategy due to participants viewing it as adaptable to a wide range of instructional and design scenarios. The descriptive summary of all responses to the round three survey can be found in Appendix I.

While there were fewer statements to comment on in this section, participants still shared feedback about how the second research question was relevant to their instructional practices. Demonstration, in particular, rose to the top of strategies due to its convenience in addressing diverse needs and outcomes and being flexible enough to adjust the strategy for time and student engagement during the one-shot session. One participant explained, "In most classes I teach, there is at least some sort of demonstration, even if it's brief. I use this for a variety of

purposes—when I'm wanting to jog memories, lay the groundwork for other skills, start a discussion, etc."

The only design model that achieved the minimum benchmark ranking was Backward Design ($M = 3.24$, $SD = 0.75$). This approach resonated with many participants as instinctive even if they did not feel comfortable saying they used the model for design.

> I don't ever say to myself, 'Hey, I'm going to use backward design!' But I do often find
>
> myself starting with outcomes and then deciding how I will get there, so perhaps
>
> backward design is my natural way of doing things.

Following efficient, rapid processes that centered outcomes was a recurring theme related to research question two throughout all three survey rounds.

Research Question Three: Design Decisions Regarding Selecting Strategies and Design Models

Round One Survey

For the final research question, participants once again had three questions that addressed the rationale used for making one-shot design decisions (see questions six, eight, and nine in Appendix C). While those three questions were specifically aligned to research question three, participants frequently mentioned design judgments in response to the other open-ended questions and, therefore, all responses were analyzed for themes relevant to research question three. The round one pattern codes and a description of each code along with the usage is available in Appendix F. For explanatory quotes describing key themes taken from participants' qualitative responses, see Appendix G.

By far the most identified themes and the most frequency mentions were in response to the third research question prompts. The importance of the disciplinary instructor's role in

participants' design processes became immediately clear in their responses. The instructor engagement was not just measured by the interactions during the one-shot itself, but the information provided prior to the session. Contacting the instructor once the one-shot request was received helped the librarian clarify expectations for the instruction during or preceding the development of the lesson plan, which provided clarity to the teaching librarian and helped make the one-shot more relevant to student needs.

While this type of assistance from the instructor was deemed important, the information provided by the instructor could be hit or miss, with some faculty not providing essential information and others inaccurately describing the student experiences or skill levels. For better or for worse, many participants described the instructor involvement as overlapping with the student experiences theme since they relied primarily on communication with faculty to gain information about student experiences for learner analysis. Regardless of the accuracy of the information, participants still valued any information they could gather about students prior to entering the classroom.

When information was not provided by the instructor, participants discussed their problem-solving strategies that would help them make assumptions about students. The course level was frequently mentioned not just for establishing students' previous experiences with the course content but also for establishing the class context. Several participants used the institution's course catalog for finding the class objectives, the one-shot request form for a syllabus or assignment description, and the instructor communication for sequencing of the one-shot in the course schedule. Combining the information learned from the instructor, student experiences, and class context, participants would derive one-shot outcomes that would often dictate the lesson design, as indicated by the usage of Backward Design. Each of these elements

were considered important when designing a one-shot in response to a new or original instructor request, however, many participants found that one-shot requests could become repetitive with experience. As a result, participants recycled strategies and lesson plans, which dictated how participants described following, or disregarding, design models. The recurrence of this theme was one of the only coping mechanisms mentioned by participants when faced with some of the barriers of one-shots like lack of information but also the librarians' availability, efficiency of design, buy-in from students and instructors, and thoroughness and rigor of the instruction.

Round Two Survey

In proportion to the meta-codes identified in the round one data analysis where the third research question drew the most comments from participants, the third section of the round two survey also had the most statements for participants to rank, 34 of the total 73 statements. After the four-point Likert scale questions (see section three of the round two survey in Appendix D), participants were also provided an open-ended text box for additional commentary on the statements. Appendix H provides a descriptive summary of results from the round two survey.

Participants were more in agreement in regard to the third section statements as the limitations of one-shot sessions and participants' intended instructional outcomes received consistent scores across round one and round two. Of the 34 statements included in round two, 14 statements did not meet the required threshold of a mean score equivalent to or greater than 3.00—equating to the "Essential to my design," "Very true of my experiences," "Important to my design," and "True of my experiences" ratings—but there were 20 statements that met the benchmark, the most of any section in the round two survey. The highest ranked statement in this section revealed participants' capacity to change a one-shot design based on class context (M =

3.89, *SD* = 0.47) like the discipline being taught, assignment involving research, and/or course level—all of which could be discovered without much instructor involvement.

The limitations of the one-shot format were evident in the design rationale statements that progressed to the third survey. In addition to establishing class context, participants made decisions based on the ease of reusing previous designs (*M* = 3.39, *SD* = 0.61), time allotted for the session (*M* = 3.72, *SD* = 0.67), and need to quickly produce designs following a one-shot session request (*M* = 3.11, *SD* = 0.76).

Additionally, with Backward Design emerging as the only design model that reached the mean ranking benchmark in round two, participants also highly rated statements involving outcomes as a driving factor for design decisions. Participants identified clear, defined objectives (*M* = 3.67, *SD* = 0.69) as vital to one-shots, which were influenced by the ACRL Framework (*M* = 3.28, *SD* = 0.67), the library's instructional programmatic standards (*M* = 3.22, *SD* = 0.88), or the instructor expectations (*M* = 3.50, *SD* = 0.71). Outside of turning to these more formal standards, participants were guided by teaching instincts they picked up in the classroom (*M* = 3.50, *SD* = 0.51), adapting lesson plans in the moment based on a gut feeling of what resonated with students (*M* = 3.00, *SD* = 0.84), and relying on humor and a helpful persona (*M* = 3.56, *SD* = 0.51) to position the library—and themselves—as useful outside of the one-shot.

Even with this section producing the most statements for the round three survey, there were fewer comments in the text field at the end of section three, with two participants clarifying their understanding of statement language. However, one participant did note that some of the emerging themes were not consistent with their own experiences, writing,

My philosophy going into a one-shot is that my instruction must fit into the large whole of the course. I wouldn't go into the one-shot without knowing what the instructor has

already taught leading up to my instruction, how my instruction builds on that, and what

students will be expected to take away to do work in the future.

This disagreement exposed that, while a consensus can begin to emerge in round two, it was not fully reached at this point in the study. Some participants' institutional contexts and access to information prior to one-shots differed, which would be addressed through additional rankings in the final survey round.

Round Three Survey

The third section of the survey in all three rounds consistently produced the most statements as participants considered how they made design judgements for one-shot sessions. Between the second and third round surveys, 14 statements were removed for not achieving the minimum consensus mean rankings. The statement receiving the highest ranking in the final round spoke to participants making strategy selections based on immediate application in the classroom ($M = 3.88$, $SD = 0.33$), which was consistent with participants selecting demonstration as the most frequent strategy in the second section of this survey. See Appendix I for the complete rankings of the round three survey along with descriptive statistics.

Themes receiving the highest rankings emphasized convenience when information and time was limited while also accounting for the development of an individual pedagogical approach. Participants who expressed the sentiment, "We have a lot of repeat customers who ask for 'what you did last time,'" also discussed how rarely they would teach these reused designs without making some type of update.

A lot of repeat business means a lot of similar assignments, so it's not necessary to

reinvent the wheel each time—do we make incremental improvements? Yes, and those

improvements are always built on the experience of teaching the session.

This classroom experience would help participants evaluate sessions for enhancements to the

design, but also fill in gaps when information was missing.

> In a perfect world, [knowledge of student experience] would be essential to my design.
>
> Unfortunately, getting students to complete pre-session surveys or even getting the
>
> professor to give me an idea of what the students already know is really difficult, so I
>
> have to use past experience to estimate where the students in a particular class and plan
>
> accordingly.

For many participants, the design when entering the one-shot needed to be flexible based on the

circumstances of the specific class. However, participants still entered the classroom with

defined objectives and aligned activities to focus the session, but objectives were limited based

on the nature of the one-shot.

> There's only so much that can be done in a one-shot, and there's only so much students
>
> can absorb in one session. I would rather students remember 1-3 things and know where
>
> to go for help, then try to pack everything they might possibly need into one hour.

The importance of establishing narrow session outcomes to guide instruction persisted in the

second and third sections of each survey round, resulting in the consensus that developing clear

outcomes were significant design considerations for participants.

Establishing Participant Consensus

To ensure consensus was reached during the final survey round, an intraclass correlation

coefficient (I*CC*) was used as a measurement to determine levels of agreement among

participants. This measurement has been used in Delphi studies, particularly when employing

Likert-scale questions for ratings (Brender, 2006; Koo & Li, 2016; Linstone & Turoff, 2002; von

der Gracht, 2012). *ICC* values are measured on a scale where less than 0.50 are indicative of low

levels of agreement, between 0.50 and 0.75 moderate agreement, between 0.75 and 0.90 good

agreement, and values greater than 0.90 are indicative of excellent agreement between

participants (Koo & Li, 2016).

The benchmark for the final round consensus was statements that received a mean

ranking equal to or above 3.00 and a standard deviation of equal to or less than 0.75. This

additional standard of consensus was added as a measure of dispersion of the mean to ensure the

final statements were evaluated with more robust measurements. Various Delphi studies have

used both the standard deviation in combination with the mean as the consensus criterion

(Naughton et al., 2017; Nworie, 2011; von der Gracht, 2012; Walker & Selfe, 2006). Consensus

statements from this study's participants, along with the research questions coordinating to the

statement, are available in Table 5.

Table 5

Statements Meeting Final Consensus Benchmarks (M $\geq$ 3.00, SD $\leq$ 0.75)

Related Research Question	Statement Achieving Consensus
RQ1	Instruction, pedagogy, and instructional design *were not* covered in my MLIS/MLS program as part of the core curriculum.

Table 5 (continued).

Related Research Question	Statement Achieving Consensus
RQ1	I developed my instructional skills through successes—and also failures—during one-shot sessions.
RQ1	I observe peers teach to develop my instructional skills.
RQ1	I rely on collaboration with my colleagues to learn about strategies, trends, and design for one-shot instruction.
RQ1	I rely on listservs to learn about strategies, trends, and design for one-shot instruction.
RQ2	Demonstration
RQ2	Backward Design Model (set outcomes and align instructional methods and assessment based on defined goals)
RQ3	Previous experience teaching the same/similar one-shot
RQ3	Knowledge of students' experiences
RQ3	Knowledge of class context (i.e., discipline, assignment, course level)

RQ3	Relationship with instructor
RQ3	Clear, defined outcomes
RQ3	Instructor expectations
RQ3	Available class time devoted to one-shot
RQ3	Inclusion of active learning strategies
RQ3	Ability to assess students' skills
RQ3	I reuse previous lesson plans because I feel comfortable with the instructor's expectations for the instruction.
RQ3	I try to be personable or use humor during instruction so that students will view librarians as friendly and the library as a valuable resource.
RQ3	I select strategies that fit within the teaching style I have developed through experience teaching one-shots.
RQ3	The strategies I select for one-shot instruction encourage application of skills that are immediately relevant to a course assignment.

After identifying these statements as being relevant to participants' experiences, the researcher

ran the intraclass correlation coefficient using SPSS, $ICC(3,17) = 0.75$, $p \leq 0.00$. This ICC value

for the final statements showed good agreement among participants (between 0.75 and 0.90)

(Koo & Li, 2016). Due to these results, the researcher determined the statements meeting the

established criteria from the third-round survey constituted a significant consensus among

participants.

CHAPTER IV

DISCUSSION

Academic libraries have responded to rapid changes in technologies, information architecture, and access to expanding resource mediums by broadening their own roles and responsibilities, which includes accepting teaching as a core professional competency (Hofer et al., 2019; Kemp, 2006; Koltay, 2011; Noe, 2013; Westbrock & Fabian, 2010; Yadav, 2018). In spite of this, librarians have still been hesitant to embrace a teacher identity, particularly as many feel ill-prepared for assuming this role in a one-shot classroom (Booth, 2011; Bowles-Terry & Donovan, 2016; Saunders, 2015; Sproles et al., 2008). Given the lack of evidence for the efficacy of the one-shot, it is not surprising that academic librarians seek out professional development opportunities to receive better preparation in pedagogy and instructional strategies that fit this unique context (Alabi et al., 2012; Badke, 2009; Fitzgibbons et al., 2017; Jacobs & Jacobs, 2009; Julien & Genuis, 2011; Mery et al., 2012; Venturella & Breland, 2019; Westbrock & Fabian, 2010). Understanding the current teaching practices of academic librarians and how they have developed and adapted their instructional approaches can help illuminate where instructional design strategies and models can be better integrated into librarians' training and one-shot design processes.

By documenting librarians' one-shot classroom experiences as part of this research, a clearer picture of the limitations and even the affordances of one-shots emerged that can help other instruction librarians identify successful teaching standards with immediate benefits to academic librarians, disciplinary faculty, and the students themselves. Additionally, the takeaways derived from the consensus of participants could suggest more targeted, systematic training opportunities that speak to a need for greater pedagogical development in the continued

effort to professionalize academic librarians' instructional programs. To this end, the researcher sought to develop a better understanding of academic librarians' design practices for one-shots from their perspectives as a means of improving the classroom experience. In this chapter, the researcher will discuss the results presented in Chapter III. This discussion of the results will be framed by the perspective of artificial systems, the process of design, and bounded rationality conceptual framework (Simon, 1996). The chapter also includes implications for practice based on the identified consensus and recommendations for future research.

Experiential Learning Opportunities to Strengthen Instructional Preparation

Based on the findings in the literature review, it was expected participants would express agreement in their dissatisfaction with the MLIS curriculum, citing concerns that it did not provide proper preparation for instruction or pedagogy in a one-shot context (Julien & Genuis, 2011; Saunders, 2015; Shonrock & Mulder, 1993; Sproles et al., 2008; Westbrock & Fabian, 2010). Ultimately, participants ranked themes that confirmed this finding in addition to statements about training that demonstrated a need for supplemental development in instruction, pedagogy, and instructional design, resulting in a significant consensus. However, responses from the three rounds of surveys presented a more complicated picture of the instructional training for librarians in master's programs. In the first round, while frequency mentions of the theme "Instruction, pedagogy, and instructional design were not covered in MLIS program" were more common than other themes related to the MLIS—"Instruction, pedagogy, and instructional design were covered in MLIS program as part of the core curriculum" and "Instruction, pedagogy, or instructional design courses were confined to an academic track in MLIS program"—taken in combination these two themes received equivalent mentions to the former. While both statements were eliminated in the round two survey, with means significantly below

the necessary benchmark, participants continued to comment on the instructional classes that were offered as part of their degree paths. For many participants who sought out instructional training in their MLIS programs, they were able to find adequate preparation, but participants still noted that it would be possible to graduate without exposure to any instruction courses and no chance to develop these competencies before entering the classroom as a professional. While the opportunity to learn about these essential classroom skills might have been available, if limited, what a majority of participants agreed was lacking was the opportunity to fully explore pedagogy and instructional design as well as the ability to practice these skills in order to develop a teacher persona as a student before entering the classroom as a librarian.

The need for this type of experiential training was evident in the training mediums that emerged as the consensus from all three survey rounds. Of the final five statements regarding professional development that met the required agreement benchmarks in the final survey round, three statements expressed a desire for improving knowledge of instructional strategies and design models through direct observations or experiences. This consensus around professional development outlets that were not passive meant participants could get hands-on experience succeeding or failing with innovative strategies. This outlet was still aspirational for many participants who had never had a professional development venue that allowed for this type of interaction, but they still saw the importance of the practical application of skills in a social context.

Each of these training options that participants felt supplemented or supplanted instructional preparation from their MLIS provided a greater opportunity for what Simon described as "learning with understanding" (1996, p. 101). In preferring professional training that emphasized application of cognitive tools discovered through meaningful learning

experiences, participants would be able to internalize problem-solving processes in artificial systems to create better adaptations in the face of the more complex external environment of one-shots. When academic librarians are introduced to objectives or lesson planning as rote learning in MLIS programs without the necessary opportunities to practice in real world environments, these processes can be relied on without sensitivity to the context, particularly when contextual information can be difficult to come by in one-shots. However, in participants' centering their professional development consensus on more active training opportunities they are able to have more numerous, various experiences where they can hone in on a design process that is adaptive to one shots. Relying on a developed internalized problem-solving strategy provides a greater chance that they would be able to modify that process based on perceived efficacy in the classroom.

Collaboration as Flexible Professional Development with Low Barriers

Experiences in the classroom took time to earn and did not always expose the participants to new trends, which is why academic librarians also found significant benefits to professional development through informal and formal collaboration and observation of peers. This medium was seen as essential for learning about innovative approaches as well as developing strong relationships with both librarians and disciplinary faculty. For participants, a strong relationship with faculty allowed them to apply in the classroom what they had learned through collaboration and observation, gaining experience without fear that failure in a one-shot would lead to a loss of future one-shot requests.

The last statement that earned consensus based on participants' ranking as relevant to their own training experiences was using listservs to learn and share information about instructional trends for one-shots. Listservs, while not a direct, synchronous connection to

colleagues, still allowed for no-cost collaboration with other librarians across institutions that did

not rely on professional membership or expensive conferences and trainings. Participants

frequently mentioned institutional barriers to accessing professional development opportunities,

particularly in regard to support, time allotted for training, and exorbitant costs for formal

learning. Collaboration, particularly the type that could be conducted asynchronously, was

viewed as an essential outlet for exposure to innovative approaches and pedagogically sound

techniques. To learn from the observation and experiences of others, participants sought out

criteria that would dictate their own behavioral strategies in the classroom, allowing them to

adapt to the artificial system of a one-shot environment (Simon, 1996). With the one-shot acting

as the less-than-ideal artificial system, collaborative professional development opportunities

could help participants share the adaptive processes unique to the one-shot context without

requiring a greater description of the internal environment of the individual librarians, making

this training medium accessible in more flexible, low-barrier, and informal venues.

Backward Design as a Flexible Design Model Appropriate for One-shots

There were a substantial number of instructional strategies and design models

participants described in the open-ended, round-one survey—a diverse range of options, many of

which were identified in the literature review (see Table 2). However, due to this variety where

participants made selections that were largely context-, institute-, student-, and librarian-specific,

a consensus was not easily achieved despite high frequency mentions during the first survey.

Between the first round and second round where 23 statements were derived from 14 themes,

participants felt strategies and models were not consistently employed during their one-shots,

resulting in only three statements progressing to the third-round survey and only two statements

achieving final consensus. Examining the statements that received the lowest rankings and did

not progress to the final round illuminates themes revealed in the statements that did reach

agreement among participants, and the statements with the highest percentage rankings of

"Never" in response to participants' frequency of adoption dealt with design models.

USER, ADDIE, and motivational design approaches are frequently cited in the literature

(Davis, 2013; Hess, 2015; Hess & Greer, 2016; Jacobson & Xu, 2002; McGowan, 2019; Mudd et

al., 2015; Mullins, 2014; Novitasari et al., 2018; Small et al., 2004; Summey & Valenti, 2013),

and these along with Gagne's Nine Events of Instruction were mentioned as relevant to

participants' design processes during the first round, yet they had the highest rates of participants

responding "Never" and the lowest means in the second-round survey: Motivational design at

72% ($M = 1.33$, $SD = 0.59$), the Nine Events of Instruction at 72% ($M = 1.44$, $SD = 0.86$), the

USER Model at 61% ($M = 1.50$, $SD = 0.71$), and ADDIE framework at 56% ($M = 1.56$, $SD =$

0.70). The only design model that emerged from this round and that ultimately achieved the

benchmark to be included with the final consensus was Wiggins and McTighe's (2005)

backward design model ($M = 3.24$, $SD = 0.75$).

The relevance of backward design was not a finding from the literature review, and an

additional search for "backward design" in library and information science top-ranking

journals—*College & Research Libraries*, *Communications in Information Literacy*, *In the

Library with the Lead Pipe*, *JLIS.it*, *Journal of Academic Librarianship*, *Journal of

Librarianship and Information Science*, and *Library & Information Science Research*—found

only three articles that meaningfully engaged with the model as a design approach (Fox &

Doherty, 2012; Mullins, 2016; Oakleaf, 2014) and an additional seven that referenced backward

design at least once. While not frequently cited in the literature, many participants were familiar

with the process, even if they did not immediately associate the approach with Wiggins and

McTighe's work. Participants expressed some insight into why frequently cited library design models were not commonly followed when backward design appeared to be most relevant to their design approaches since the investment—both time and money—into learning and thoroughly implementing a design model could be onerous. Additionally, participants discussed a familiarity with learning outcomes that made the backward approach feel less rigid than other models. Backward design appeared to place less of a burden on participants to learn, with the discrete *steps* of backward design appearing more instinctual, especially as instructor expectations, research assignment context, and course information were easier to ascertain than information needed for a user analysis required by other design models.

Participants also felt backward design more easily lent itself to creating assessment opportunities that demonstrated achievement of the defined outcomes. While assessment activities ($M = 2.28$, $SD = 1.02$), technology knowledge checks ($M = 1.83$, $SD = 0.62$), and analog knowledge checks ($M = 2.78$, $SD = 1.17$) received low rankings during the second-round survey, which resulted in their elimination on the final survey, participants continued to mention the importance of evaluation and feedback in the open-ended comment text boxes and their desire to integrate this more into their practice. Backward design created opportunities for assessment of learning objectives built into the one-shot design that did not require further steps.

Additionally, the lack of pedagogical training identified in response to the survey sections aligned to the first research question exposed some gaps in participants' understanding of how to apply design models when developing instruction or the ability to adapt a model for the unique context of one-shot sessions, with some participants only feeling a "surface-level comfort" with instructional design principles. With all the design models mentioned, even with backward

design, some participants described an unease in incorporating design models into their everyday processes because they worried they might misuse it or not fully grasp all the constructs.

However, the consensus that emerged around backward design was that it had the lowest learning curve and felt like a natural approach to instruction. With backward design established as an adaptable foundation for one-shot design processes, participants felt exposure to additional frameworks as part of their own development would supplement their instructional practices, especially when looking to integrate critical pedagogy, embodied learning, phenomenological inquiry, curiosity pedagogy, process theory, project-based learning, and motivational models. Interest in incorporating additional frameworks into one-shot design cropped up in participant comments but were always tempered by cost and time barriers.

This finding about the importance of backward design reflects Simon's (1996) emphasis on goals and objectives in the process of design. Centering the expected desired performance from students in a one-shot provides a strong foundation that simplifies problem-solving by allowing librarians to work backward from defined goals. In this design approach, participants could focus a one-shot on teaching more attainable goals and skills in order to create a satisfactory outcome rather than worrying about the ideal environment for developing more complex information literacy competencies.

Demonstration as a Flexible Instructional Strategy Appropriate for One-shots

Participants struggled to find consensus in regard to instructional strategies. The round one survey revealed participants incorporated a wide range of techniques, but these were deployed based on personal style, the class context, instructor expectations, and a variety of other factors making it difficult to find a universal approach that could be generalized as appropriate for all one-shots. The only identified instructional strategy that achieved the minimum

benchmarks to be included in the final consensus was in regard to using demonstration in a one-shot. Demonstration was a common means among participants for immediately applying discussed concepts in a manner relevant to the context of students' assignment or topics. As evidenced by the literature review findings, this strategy as long been deployed in the one-shot classroom as it is an effective method that could be quickly adapted if students are already familiar with basic strategies, further along in their research processes than anticipated, or need more support from the instructional librarian. Demonstration can also be shortened or drawn out based on the time available in the one-shot and the use of other strategies as participants made it clear that demonstration was always used in conjunction with other approaches that were appropriate to the class context and their own teaching style.

The consensus on using demonstration as an instructional strategy represents participants' embrace of realism in the face of scarcity of information and uncertainty, also known as a one-shot environment. For Simon, these methods would fit within the logic of optimization, balancing the selection of the right course of action with the appropriate adaptive behavior. Demonstration can be easily modified in the face of the classroom context or experience, which minimizes the requirements placed on the individual librarian. The more participants relied on this method, the more they used it, which allowed for adaptations in the moment based on a "gut feeling," a phenomenon of intuition that Simon (1996) explained by describing "most intuitive leaps as acts of recognition" (p. 89). Many participants characterized their use of design models and selection of instructional strategies as "subconscious," but through experience and repetition, these approaches help internalize a problem-solving process that made adaptation easier in complex environments.

Aspiration Level Criterion for Design Rationales

Rationales for making design decisions were just as varied as the use of design models and strategies, but participants more readily agreed on the ability to generalize their rationales, resulting in research question three having the most statements reaching the benchmark for consensus as any of the questions guiding this study. This ability to draw conclusions about their own design processes was because participants' rationales were largely based on the constraints of the complex environment of a one-shot or the inadequate internal preparation from MLIS programs. The resulting designs, most participants acknowledged, were not ideal for addressing information literacy competencies, but were satisficing for the reality of one-shots. As Simon (1972) described satisficing within the construct of bounded rationality, this outcome is still acceptable since real-world contexts rarely allow for careful, exhaustive, systematic searches for design solutions. For one-shot design, emphasizing simple, flexible approaches was acceptable, "not because less is preferred to more but because there is no choice" (Simon, 1996, p. 29). The processes librarians developed were in response to the instructional need for short, point-of-need instruction where deeper integration into larger curriculum was not achievable, not because the one-shot system was optimal. Simon (1996) proposed that the process of design is largely dependent on the quality of available information and, therefore, "the bounds of human rationality are addressed by arranging decisions so that the steps in decision making can depend largely on information that is locally available to individuals" (p. 45). As a result, academic librarians developed instructional design priorities based on what Simon referred to as aspiration levels. These internal criterion signal that problem-solving can end because the aspiration levels mark a satisfactory, though not ideal, decision or outcome.

The criterion participants used for satisficing in a one-shot and ranked as essential to their design remained the most consistent across the three rounds of surveys, with 34 statements in the second survey derived from the 20 round-one themes, 20 statements making it to round three, and 13 statements achieving consensus. The final 13 agreed-upon statements were grouped into four aspiration level criterion that provide insights into how participants allocated scarce resources in a one-shot context: instructional design priorities, goal-driven, context, and one-shot limitations.

Instructional Design Priorities Criteria

Of the statements achieving the final benchmarks, the rationale receiving the highest consensus ranking was in regard to instructional design priorities criteria. For participants who set their aspiration level at this criterion, design decisions were largely dictated by principles that integrated sound pedagogy or actively considered best practices based in instructional design research. Additionally, participants selected strategies that mirrored their own professional development preferences, namely basing design decisions on their previous one-shot teaching and improving their processes based on these experiences. The aspiration levels included rationale statements that focused on relevance and motivation ($M = 3.88$, $SD = 0.33$), fit within a developed teaching persona ($M = 3.65$, $SD = 0.49$), incorporated active learning strategies ($M = 3.53$, $SD = 0.51$), and allowed for the assessment of achieving learning outcomes ($M = 3.06$, $SD = 0.56$). Since demonstration was the only instructional strategy that achieved consensus, this rationale criteria for making design decisions revealed in greater detail why there was so much variance and little agreement in regard to research question two—an authentic, engaging learning experience relevant to a particular class context could not be universally deployed in all one-shots. Participants placed significant emphasis on engagement, ensuring instruction was relevant

to the class context and relying on active learning strategies so that students could immediately interact with resources that were authentic to the librarian's instructional approach, the class, and individual student experiences. Demonstration could be easily adapted on the fly, but another strategy like problem-based learning would require significant preparation and might not be equally useful in a variety of one-shot settings. And, while assessment activities did not reach consensus as a strategy, participants still made design decisions based on the ability to informally assess student performance and improve the efficacy of their own instructional practices. Without rigid, structured assessments, participants expressed designing the one-shot in a manner that would allow for observation of skills, which might change depending on what was covered during the session. In grounding design decisions in this criterion, participants were able to enter the class with a great deal of flexibility so that the one-shot could be customized based on how much information—or how little information—was understood prior to the session.

Goal-driven Criteria

In line with the significance Simon (1996) placed on goals and objectives in the process of design, the goal-driven aspiration level criteria centered outcomes and desired end performance for the one-shot design. The rationale statements supporting this criterion emphasized the importance of understanding instructor expectations ($M = 3.65$, $SD = 0.49$) when developing clear and defined outcomes ($M = 3.59$, $SD = 0.62$), the comfort level with previously teaching the same or similar one-shot session ($M = 3.59$, $SD = 0.62$) so that previous lesson plans could be reused ($M = 3.53$, $SD = 0.51$), and the development of a collegial, collaborative relationship with an instructor ($M = 3.00$, $SD = 0.61$).

Each of these statements were clearly aligned to participants' preference for backward design, where instructor expectations defined students' performance gaps, prompting the

development of the lesson outcomes and directly influencing the one-shot design. While outcomes were considered "critical," "important," and "essential" to participants, the more frequently they worked with disciplinary faculty, the more comfortable they felt making assumptions about what needed to be accomplished in the one-shot and detailing the outcomes on their own. Established relationships with faculty also allowed participants to shape or add to expectations for student performance, inserting their information literacy expertise into the one-shot design.

Context Criteria

While outcomes drove many design decisions among participants, the development of outcomes were largely shaped by the context aspiration level. For this criteria, participants relied on more traditional instructional design needs assessment that took into consideration the class context, such as the discipline, relevant assignment, and course level ($M = 3.82$, $SD = 0.39$), and a user analysis of students' previous experiences conducting research ($M = 3.35$, $SD = 0.49$). Participants expressed how important a contextual and user analysis was to their design processes even when sometimes information was limited or difficult to come by prior to the one-shot. While many participants described insufficient access to this type of information, others expressed this inadequacy as being largely institution-specific since other participants worked in environments where contextual information was required from instructors when making the one-shot request. Other participants described how they would locate information in the course catalog when it was not immediately forthcoming from the instructor and base designs on assumptions or previous experiences with students. For many participants, there was no guarantee they would have access to consistent information about the context prior to the one-

shot and prioritized their previous experiences and entering the session with a flexible design to be adapted depending on the circumstances they found upon entering the classroom.

One-shot Limitations Criteria

Similar to this reliance on information that may or not be available, the final aspiration level criteria spoke to participants' need to make design decisions in the face of one-shot limitations. A significant one-shot constraint recognized by many participants was in regard to the available time devoted to the library instruction ($M = 3.76$, $SD = 0.44$). With this understanding of the one-shot weaknesses, many participants made design decisions that used the available instructional time by situating themselves, and the library in general, as being a valuable resource to turn to when conducting research ($M = 3.59$; $SD = 0.62$).

Participants were well versed in the limitations of one-shots, but recognized they were too deeply integrated into their respective instructional programs and were more focused on design adaptations than a complete overhaul of instructional approaches. With one-shots limited to one class session—and not always the entire class session—participants knew that no matter the design they planned in advance, they might need to make cuts to certain activities or objectives. As a result, participants stated they would prioritize outcomes in advance so that they could easily cut material in the moment if they were going over the allotted time. With this understanding that only so much could be covered in a one-shot context, participants agreed they often had an ulterior objective of making themselves and the library appear helpful and accessible as a resource outside of the one-shot so that if a student remembered nothing else, they would remember the librarian. Many participants were unsure of the efficacy of a one-shot, but they still viewed the medium as an opportunity for showing students the library was an outlet where they could ask for help.

Recommendations

This study was prompted by a need for practical recommendations academic librarians could use to better integrate instructional design principles into the field for improved one-shot designs. There are many useful strategies and models mentioned by participants and identified in the literature review that did not achieve consensus in this study and, therefore, did not inform the takeaways but that should not be discounted in practice. The following recommendations are based on the experiences and consensus of participants, summarizing the study's findings into attainable proposals that can be integrated into the field.

1. Expand Experiential Learning

Throughout the deployed surveys, participants described the importance of experience, observation, and trial and error in their own training and development as teachers. When discussing their educational preparation for one-shot instruction, participants were likely to have some or no exposure to instructional strategies as part of their MLIS, and, regardless of access to information literacy instruction coursework, still felt ill-equipped to enter the classroom. They consistently expressed a need for increasing exposure to pedagogy, instructional design, and innovative instructional strategies, but also in a manner that allowed for hands-on practice and was not just limited to what one participant referred to as a "dog and pony show." To provide the type of training preferred by participants and lacking in the current MLIS curriculum, graduate schools should encourage adoption of experiential learning practices grounded in situated cognition. Embracing this approach would provide prospective academic librarians increased involvement with instructional techniques while acknowledging these constructs are inextricably linked to the context in which they are used, particularly one as unique as the one-shot (Choi & Hannafin, 1995; Young, 1993).

In practice, expanding experiential opportunities in the MLIS would require adding credit hours to the degree requirements in order to facilitate learning experiences for students that place them in the classroom. Borrowing from other graduate programs, MLIS institutions could adopt high-impact instructional practices like cognitive apprenticeships, internships, and service-learning. A guided, social learning environment combined with a reflective practice would further expose novices to pedagogy and innovative approaches from more experienced teachers, develop their own model of expertise through comparisons of problem-solving processes, and help students gain experiences in ambiguous, uncertain environments (Quinn, 1994; Ramana et al., 2014). This type of preparation would give librarians an opportunity to better address the constraints of the complex environment of a one-shot and practice optimization strategies prior to undertaking a professional instructional role.

While the MLIS curriculum can be improved, it cannot be relied on to prepare academic librarians for all possible one-shot scenarios and continued professional development should still play a role. Participants expressed consensus on finding innovative approaches through colleagues, observation, and, once again, experience. Providing continuity between the situated learning from a revised graduate program, practicing academic librarians should develop professional development opportunities that place an emphasis on learning as a social activity involving collaboration in authentic environments. This type of support could be formal or informal, local or regional where colleagues could rely on each other for peer observation of teaching, feedback, and sharing of resources. Participants reached a consensus on the need for greater instructional training and, in expanding this support in both MLIS programs and professional roles, the development of design skills for one-shots could receive equivalent

weight and attention that other responsibilities and core competencies receive within the academic library field.

2. Supplement Backward Design with Layers of Necessity Approach

The findings from this study demonstrate that backward design plays a more significant role in librarians' design practices than suggested by the more frequently cited models in the literature. Based on participants' comments, the reliance on backward design was largely adopted due to its flexible approach, rapid design time, ease of use, and emphasis on outcomes that could quickly be aligned to assessment. However, while participants described their satisfaction with this design approach, they also expressed interest in incorporating more advanced instructional design models, with a greater focus on student experience and motivation, relevance to class and disciplinary context, and more critical, theoretical approaches to instruction. As a result, participants felt comfortable relying on the foundational constructs of demonstration and backward design but sought additional modifications to their process that would allow for the omission or inclusion of complex steps based on the availability of time, additional contextual knowledge, and/or resources.

Citing Simon's satisficing construct where designers are expected to "get the job done while not necessarily in an optimal manner," Tessmer and Wedman (1990) proposed the layers of necessity model where "based on the time and resources available to the developer, the developer chooses a *layer* of design and development activities to incorporate into an instruction product or project. *The layer is matched to the necessities of the project*" (p. 79). This approach to instructional design would be an appropriate supplement to academic librarians' current design processes considering the five distinctions Tessmer and Wedman (1990) described that

mark layers of necessity as unique among other design models: task enhancement, principle-based, merged stages, opportunistic perspective, and efficiency-based.

Applying a layers of necessity framework to a one-shot design, academic librarians could reuse previous lessons—an already familiar practice for participants—but enhance the previously completed work by making iterative revisions using information learned from preceding one-shot sessions. The rationale for enhancing tasks would not be based on sequential procedures but principle-based, allowing the librarian to incorporate new activities, or design layers, given the specific circumstances of a one-shot request, the available time devoted to the design and the one-shot, and the amount of information the designer has access to or can decipher from outside sources. Enhancements would then be included in the design once the librarian could reflect on past teaching experiences and prioritize activities based on identified principles that could be pursued further given fewer environmental constraints. Wedman and Tessmer (1991) illustrated how an initial design layer, restricted by a lack of time and resources, could be enhanced with multiple layers (see Figure 3).
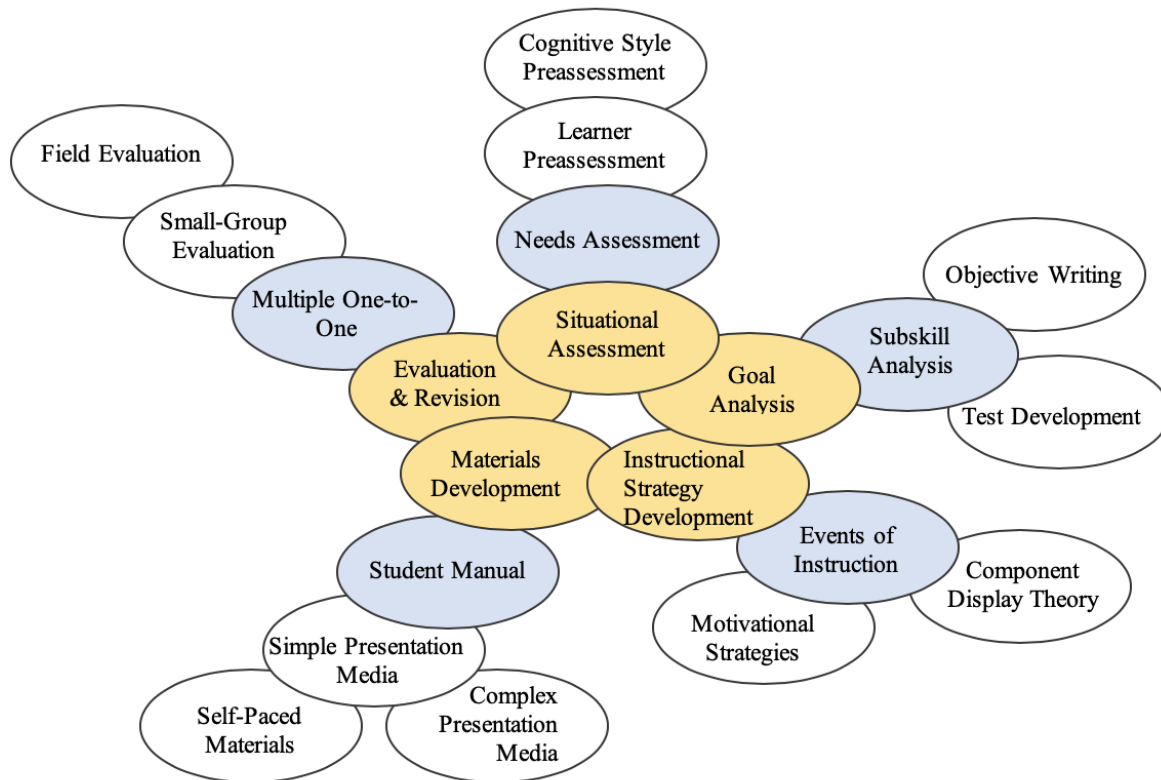
Figure 3. Modified figure based on Wedman and Tessmer (1991) Layer Selected from a Range

of Design Activities

As depicted in the figure, the initial layer (designated in yellow) is not a discrete set of tasks, but

merged as one layer, with design not focused on a subsequent step but rather ensuring that an

entire layer is not so complex that it cannot be completed in that design iteration. Therefore,

when the complexity of a task associated with a layer affects the development, the entire layer is

cut since the layer and task are "unified by virtue of their common purpose: adding to product

design/development within project constraints" (Tessmer & Wedman, 1990, p. 81). A modified

illustration of Figure 3 provides insight into how application of the layers of necessity approach could integrate participants' design consensus into a one-shot design (see Figure 4).
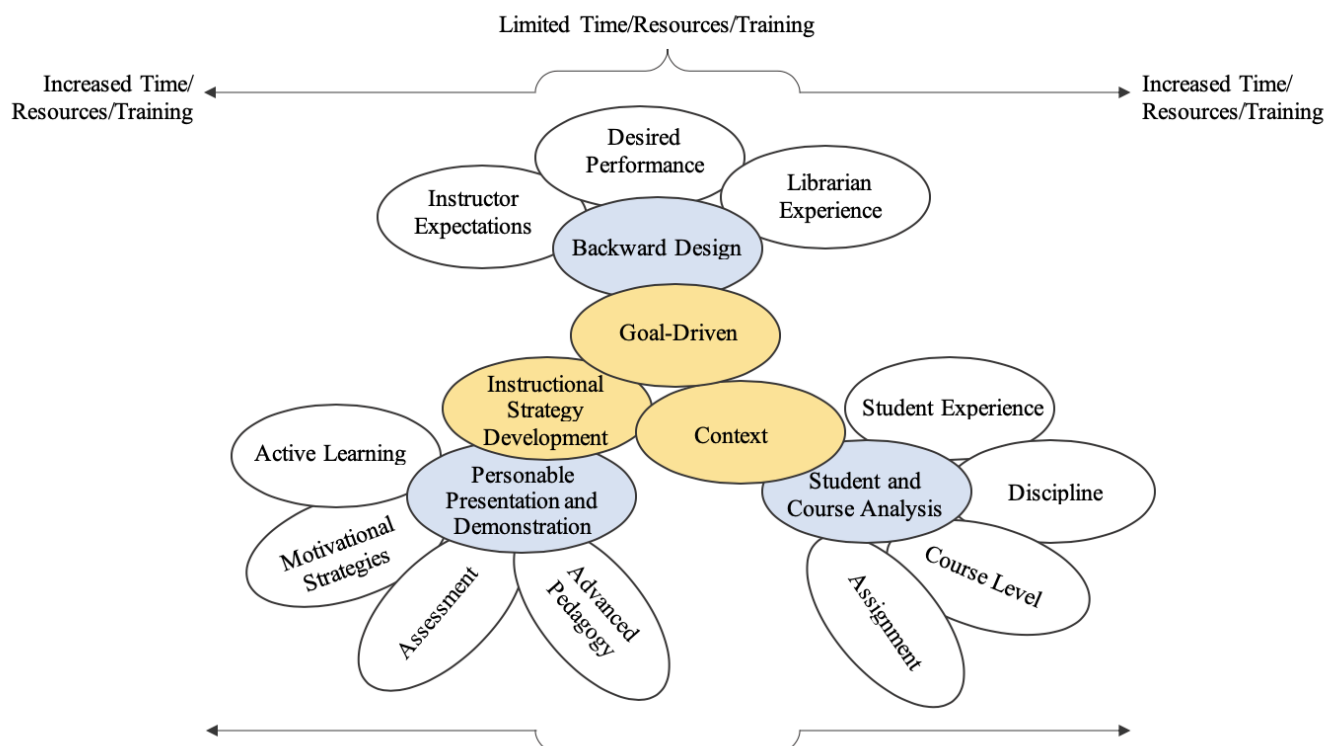

Figure 4. Modified figure incorporating participant consensus using original illustration based on Wedman and Tessmer (1991) Layer Selected from a Range of Design Activities

By supplementing the foundational design processes already described by participants with the layers of necessity approach, academic librarians could enhance the design tasks as the opportunity within the project bounds allowed and adopt an efficient design that would be more effective when the designer "judiciously select[s] and implement[s] a suitable layer of design and development activities" (Wedman & Tessmer, 1991, p. 50). As described by Baaki (2018), layers of necessity is less a model and more "a way of thinking about instructional design" (p. 17). Incorporating this more flexible approach does not mistake a one-size-fits-all, prescriptive design

practice as appropriate for a one-shot, helping academic librarians develop processes that satisfice while growing their design skills when the environment and context allows.

3. Collaboration and Context

Participants recognized the importance of context when designing one-shots. This was not just in relation to the context of the course—such as the assignment, discipline, timing of the one-shot in the term, and role of the course within the program—but also the context of the student—such as students' majors, previous experiences with the library and one-shots, and relevance of instruction to future aspirations. However, access to information was largely dependent on disciplinary faculty and participants had varying degrees of success in ensuring consistent communication for sharing this context:

> The last one-shot I taught was the first time I had gone into this class, and I had very little interaction with the faculty until the day before the session, which led me to feel under prepared. This is not uncommon for a professor to email me back the day before the session…but I had to scramble.

Developing collaborative relationships is not a new recommendation for librarians. At the very least, collaboration can lead to a one-shot invitation, but, done effectively, it can also lead to greater sharing of information or a more significant role in the classroom beyond a one-shot (Cunningham & Lanning, 2002; Øvern, 2014; Rockman, 2003). However, when this suggestion is typically made in the literature, librarians are cast as dependent, relying on faculty courtesy for the sake of improved information literacy instruction. Rarely are academic librarians viewed as a peer in this collaboration who is providing a valuable resource to address a noticeable and important gap in students' competencies.

Participants in this study who described solid relationships with faculty and typically entered the classroom with, at minimum, a syllabus and an assignment description also described how sharing information was not a passive request but an essential requirement of a one-shot request. Taking a more pro-active approach where faculty recognize the request is part of the design development can better situate academic librarians in their relationships with instructors while also ensuring critical contextual information is not based in librarian guesswork.

4. Authentic Learning for Students

Echoing the types of learning experiences participants enjoyed as well as the strategies participants agreed upon as being relevant to their own design processes, one-shots should provide students with more opportunities for authentic learning. Information literacy can often be viewed as abstract, particularly since the adoption of the ACRL Framework where standards and skills were replaced with knowledge practices and dispositions (ACRL, 2016). As a result, librarians might shy away from developing objectives that incorporate the Framework. However, the use of threshold concepts that encourage students to grapple with the larger ideas at the center of disciplines, can be adapted to develop outcomes authentic to students' gaps in understanding information literacy. Using the big ideas embedded in the Framework can also support librarians' use of innovative approaches that examine big ideas in authentic, complex environments. Participants' reliance on demonstration can put too much emphasis on the librarians' role as "sage on the stage" in the one-shot. Instead, librarians can give more student ownership of the instruction by shifting to more of a facilitation role, highlighting the relevance of information literacy threshold concepts to the immediate classroom context as well as the more complex real-world context outside the classroom. Demonstration could still be a reliable strategy, but reducing the class time devoted to this approach would grant more time to activities

that allow for students pursuing their own interests, collaborating with peers, and reflecting on their learning experience, creating one-shots that focus on deeper engagement with information literacy constructs.

Implications

The findings from this study validate the literature results in that participants developed a consensus around the limitations of their professional training, contradictory constraints and opportunities found in one-shots, and the need for a flexible approach for librarians' design processes (Badke, 2009; Belzowski & Robison, 2019; Bowels-Terry & Donovan, 2016; Jacobs & Jacobs, 2009; Julien & Genuis, 2011; Mery et al., 2012; Powell & Kong, 2017; Saunders, 2015; Sproles et al., 2008; Westbrock & Fabian, 2010). Additionally, results from this study found that practicing academic librarians made intuitive modifications to their design processes, outside the most frequently cited design models, that were specific to the one-shot medium and centered learning outcomes, student experiences, and class context. Design models created for curricular and credit course design were not easily adaptable to the one-shot, which resulted in the adoption of backward design, a flexible approach that more easily integrated participants' identified instructional priorities.

As described in the literature review, the adoption of ACRL's Framework for Information Literacy for Higher Education rejected the traditional outcomes-based standards previously used in the field. The researcher recognizes the weight participants place on outcomes when designing one-shot instruction, but also recommends integrating more theory into the day-to-day design practices of librarians. This study reflects the field's continuing struggle with the Framework's division between practitioners and research and theory. However, the implication of the results and recommendations suggests a way forward where academic librarians can adopt

instructional design theory through a layered approach that is flexible in its ability to adjust to the practical limits of time, resources, and context.

Additionally, updates to the MLIS curriculum that provide the same weight to instructional development as professional roles do could help academic librarians feel more comfortable embracing their classroom responsibilities, even in the unique environment of one-shot sessions. Opportunities for training collaborations and observation with colleagues to further strengthen the use of supplemental design models, develop relationships with disciplinary faculty, and create authentic learning experiences for students are recommendations that give individual librarians more control over their professional development and processes once they are practicing in the field. Greater exposure to instructional design principles and practice with such principles that take into consideration the unique circumstances of a one-shot, could better equip academic librarians for facilitating the development of information literacy competencies as they become increasingly important to students' lives (Anderson & May, 2010; Bryan et al., 2018; Hofer et al., 2012; Koltay, 2011; Roberts, 2017).

While this study largely centered the benefits for academic librarians integrating instructional design principles into the library and information science field, there are implications for the instructional design and technology field in regard to developing closer connections with librarian colleagues. As described in the literature review, there was a historical partnership between these two fields that did not develop into a lasting formalized collaboration (Dale, 1969; Small, 1988). However, there is much to be learned at the intersection of instructional design, educational technology, information literacy, and libraries, especially as the impact of educational technology continues to grow in higher education. A lasting partnership that better integrates instructional design into the academic library could lead to innovative

teaching and learning initiatives with benefits for librarians, designers, and, perhaps most importantly, students.

Future Research

Delphi studies have been shown to be effective in establishing consensus among experts, but data collected reflects the opinions of participants rather than the reality of participants' experiences. The small sample sizes, high attrition rates, and uneven sampling spread of participants make it difficult to generalize results and develop theory (Brady, 2016; Keeney et al., 2011; Linstone & Turoff, 2002; Rowe & Wright, 1999). As a result, additional research should be conducted to confirm these findings, particularly to account for greater diversity of instructional experience among participants, geographical location, and institutional context. Follow-up research is also needed to validate the recommendations, particularly in novel areas such as the use of backward design and layers of necessity in one-shot design. Incorporating other methodologies beyond the Delphi Technique in exploring academic librarians' design processes such as a think-aloud protocol would also help strengthen the findings of the current study.

Additionally, in regard to the meaningful drop in statements achieving consensus for research question two, more research should be conducted to explore the context in which certain strategies and models are deployed in one-shots. As this study was looking for general approaches that librarians use across all one-shots, few statements reached consensus among this study's participants. Further exploration in this area could explore one-shots taught in specific disciplines, academic environments, or student populations that might reveal additional strategies and models or greater consensus.

Conclusion

The purpose of this study was to explore the instructional preparation and one-shot design processes of academic librarians. This research supports the integral work of academic librarians as the instructional leads on college campuses for teaching essential information literacy competencies. The findings and implications of the present study provide a solid foundation for developing research-backed practices specific to the one-shot session. Using Simon's pragmatist paradigm, this research also sheds light on the need for design considerations that are specific to the one-shot, exploring the adaptive processes and behaviors unique to this goal-driven environment that satisfice the audience of librarian, disciplinary faculty, and student. Participants were able to develop a consensus on the lack of preparation in the master's curriculum and preferred methods for continuing professional development to deepen understanding of these needed instructional design skills. Additionally, librarians' use of backward design due to its centering of learning objectives, consideration of the one-shot context and limitations, and flexibility in the face of uncertainty was a new finding that should be explored with further research. Despite the limitations inherent to the medium, there is still a need for efficient and effective design as one-shots continue to be a useful method for reaching students and faculty. The consensus-driven conclusions provide useful takeaways for academic librarians as they examine low-cost, flexible options for improving their instructional practices. By providing these practical guidelines to help with complex decision-making in a real-world environment, librarians can be more proactive in teaching information literacy competencies and more confident in assuming the role of teacher and designer.

References

Agosto, D.E. (2002). Bounded rationality and satisficing in young people's Web-based decision

making. *Journal of the American Society for Information Science and Technology, 53*(1),

16-27. https://doi.org/10.1002/asi.10024

Alabi, J., Huisman, R.K., Lacy, M., Miller, W., & Snadjr, E. (2012). By and for us: The

development of a program for peer review of teaching by and for pre-tenure librarians.

Collaborative Librarianship, 4(4), 165-174.

American Library Association. (1989). *Presidential committee on information literacy: Final

report*. http://www.ala.org/acrl/publications/whitepapers/presidential

American Library Association. (2009). *Core competencies*.

http://www.ala.org/educationcareers/careers/corecomp/corecompetences

Anderson, K., & May, F.A. (2010). Does the method of instruction matter? An experimental

examination of information literacy instruction in the online, blended, and face-to-face

classrooms. *The Journal of Academic Librarianship, 36*(6), 495-500.

Angell, K., & Boss, K. (2016). Adapting the amazing library race: Using problem-based learning

in library orientations. *College and Undergraduate Libraries, 23*(1), 44-55.

https://doi.org/10.1080/10691316.2014.935547

Association of College and Research Libraries. (2016). *Framework for information

literacy for higher education.* http://www.ala.org/acrl/standards/ilframework.

Association of College & Research Libraries. (2017). *Roles and strengths of teaching librarians*.

http://www.ala.org/acrl/standards/teachinglibrarians

Association of College & Research Libraries Framework. (2016). *Information Literacy Sandbox*.

http://sandbox.acrl.org/about

Association of College & Research Libraries Planning and Review Committee. (2019).

    Environmental scan 2019. http://www.ala.org/acrl/sites/ala.org.acrl/files/content/

    publications/whitepapers/EnvironmentalScan2019.pdf

Avery, S., & Ward, D. (2010). Reference is my classroom: Setting instructional goals for

    academic library reference services. *Internet Reference Services Quarterly, 15*(1), 35-51.

    https://doi.org/10.1080/10875300903530264

Baaki, J. (2018). Tessmer and Wedman: Ahead of their time. *Journal of Applied Instructional*

    Design, 7(2), 17-20. https://doi.org/10.28990/jaid2018.072004

Badke, W. (2009). Ramping up the one-shot. *ONLINE: Exploring Technology & Resources for*

    Information Professionals, 33(2), 47-49.

Barge, S., & Gehlbach, H. (2012). Using the theory of satisficing to evaluate the quality of

    survey data. *Research in Higher Education, 53*(2), 182-200.

    https://doi.org/10.1007/s11162-011-9251-2

Baskerville, R. (2018). The emergence of design science research from decision theory.

    Scandinavian Journal of Information Systems, 30(2), 55-62.

Bates, M.J. (2009). An introduction to metatheories, theories, and models. In K.E. Fisher, S.

    Erdelez, & L.E.F. McKechnie (Eds.). *Theories of Information Behavior.* Information

    Today, Inc.

Bauder, J., & Rod, C. (2016). Crossing thresholds: Critical information literacy pedagogy and

    the ACRL framework. *College & Undergraduate Libraries, 23*(3), 252-264.

    https://doi.org/10.1080/10691316.2015.1025323

Bawden, D., & Robinson, L. (2008). The dark side of information: Overload, anxiety and other

    paradoxes and pathologies. *Journal of Information Science, 35*(2), 180-191.

    https://doi.org/10.1177/0165551508095781

Bean, T.M., & Thomas, S.N. (2010). Being like both: Library instruction methods that outshine

    the one-shot. *Public Services Quarterly, 6*(2-3), 237-249.

Belzowski, N., & Robison, M. (2019). Kill the one-shot: Using a collaborative rubric to liberate

    the librarian-instructor partnership. *Journal of Library Administration, 59*(3), 282-297.

    https://doi.org/10.1080/01930826.2019.1583018

Bielat, V.E., Zedan, G., & Remenapp, S. (2018). Connecting new freshmen with the library:

    People, places, and problem solving. In K. Bailin, B. Jahre, & S. Morris (Eds.). *Planning*

    academic library orientations: Case studies from around the world. Chandos Publishing.

Booth, A., & Brice, A. (2004). Why evidence-based information practice? In A. Booth & A.

    Brice (Eds.), *Evidence based practice for information professionals: A handbook* (pp. 1-

    13). Facet Publishing.

Booth, C. (2011). *Reflective teaching, effective learning: Instructional literacy for library*

    educators. American Library Association.

Bowles-Terry, M., & Donovan, C. (2016). Serving notice on the one-shot: Changing roles for

    instruction librarians. *International Information & Library Review, 48*(2), 137-142.

    https://doi.org/10.1080/10572317.2016.1176457

Brady, S.R. (2016). The Delphi method. In L.A. Jason & D.S. Glenwick (Eds.), *Handbook of*

    methodological approaches to community-based research: Qualitative, quantitative, and

    mixed methods (pp. 61-67). Oxford University Press.

Brender, J., Ammenwerth, E., Nykänen, P., & Talmon, J. (2006). Factors influencing success

and failure of health informatics sytems: A pilot Delphi study. *Methods of Information in*

    Medicine, 45(1), 125-136. https://doi.org/10.1055/s-0038-1634049

Brill, J.M., Bishop, M.J., & Walker, A.E. (2006). The competencies and characteristics required

    of an effective project manager: A web-based Delphi study. *Educational Technology*

    Research & Development, 54(2), 115-140. https://doi.org/10.1007/s11423-006-8251-y

Brookes, B.C. (1980). The foundations of information science. Part I. Philosophical aspects.

    Journal of Information Science, 2(3-4), 125-133.

    https://doi.org/10.1177/016555158000200302

Bryan, J.A., Asher, D., & Karshmer, E.D. (2018). Assessing librarians' teaching of one-shot

    sessions: A new model for evaluating instructional performance. *College and*

    Undergraduate Libraries, 25(4), 350-371.

    https://doi.org/10.1080/10691316.2018.1527268

Buchanan, H.E., & McDonough, B.A. (2017). *The one-shot library instruction survival guide*

    (2nd ed.). ALA Editions.

Buchanan, S., Harlan, M.A., Bruce, C.S., & Edwards, S.L. (2016). Inquiry based learning

    models, information literacy, and student engagement: A literature review. *School*

    libraries worldwide, 22(2), 23-39.

Carlson, J., & Kneale, R. (2011). Embedded librarianship in the research context: Navigating

    new waters. *College & Research Libraries, 72*(3), 1-4.

Case, D.O. (2007). *Looking for information: A survey of research on information seeking, needs,*

    and behavior (2nd ed.)*.* Emerald Group Publishing Limited.

Chakravarty, R. (2008). Information literacy in the knowledge society: Empowering learners for

    a better tomorrow. In *Trends and strategic issues for libraries in global information*

society (pp. 1-21). Twenty First Century Publications.

Chan, E.K., & Knight, L.A. (2011). 'Clicking' with your audience: Evaluating the use of

personal response systems in library instruction. *Communications in Information*

Literacy, 4(2), 192-201. https://doi.org/10.15760/comminfolit.2011.4.2.96

Chartered Institute of Library and Information Professionals. (2018). *Definition of information*

literacy. https://infolit.org.uk/ILdefinitionCILIP2018.pdf

Choi, J.I., & Hannafin, M. (1995). Situated cognition and learning environments: Roles,

structures, and implications for design. *Educational Technology Research and*

Development, 43(2), 53-69.

Chu, H. (2015). Research methods in library and information science: A content analysis.

Library & Information Science Research, 37(1), 36-41.

https://doi.org/10.1016/j.lisr.2014.09.003

Cisse, S. (2016). *The fortuitous teacher: A guide to successful one-shot library instruction.*

Chandos Publishing.

Cohen, N., Holdsworth, L., Prechtel, J.M., Newby, J., Mery, Y., Pfander, J., & Eagleson, L.

(2016). A survey of information literacy credit courses in US academic libraries:

Prevalence and characteristics. *Reference Services Review, 44*(4), 564-582.

Community of Online Research Assignments. (2019). *Assignments*.

https://www.projectcora.org/assignments

Cook, P., & Walsh, M.B. (2012). Collaboration and problem-based learning: Integrating

information literacy into a political science course. *Communications in Information*

Literacy, 6(1), 59-72. https://doi.org/10.15760/comminfolit.2012.6.1.118

Cooke, N.A. (2018). Critical literacy as an approach to combating cultural

misinformation/disinformation on the Internet. In D.E. Agosto (Ed.), *Information literacy and libraries in the age of fake news* (pp. 36-51). ABC-CLIO, LLC.

Cruickshank, P., Hall, H., & Taylor-Smith, E. (2011). *Enhancing the impact of LIS research projects: RiLIES project report.* https://lisresearchcoalition.files.wordpress.com/2012/02/rilies1_report.pdf

Cunningham, T.H., & Lanning, S. (2002). New frontier trail guides: Faculty-librarian collaboration on information literacy. *Reference Services Review, 30*(4), 343-348. https://doi.org/10.1108/00907320210451349

Dale, E. (1969). *Audiovisual methods in teaching* (3rd ed.). Holt, Rinehart, and Winston, Inc.

Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science, 9*(3), 458-467.

Davis, A.L. (2013). Using instructional design principles to develop effective information literacy instruction: ADDIE model. *College & Research Libraries News, 74*(4), 5-7.

Delbecq, A.L., Van de Ven, A.H., & Gustafson, D. (1975). *Group techniques for program planning: A guide to nominal group and Delphi processes*. Scott, Foresman, and Company.

Dempsey, P.R. (2017). Resource delivery and teaching in live chat reference: Comparing two libraries. *College & Research Libraries, 78*(7), 898-919. https://doi.org/10.5860/crl.78.7.898

Desai, C.M., & Graves, S.J. (2008). Cyberspace or face-to-face: The teachable moment and changing reference mediums. *Reference & User Services Quarterly, 47*(3), 242-254.

Devakunchari, R. (2014). Analysis on big data over the years. *International Journal of Scientific and Research Publications, 4*(1), 1-7.

Dewey, B. (2004). The embedded librarian: Strategic campus collaborations. *Resource Sharing & Information Networks, 17*(1-2), 5-17.

Diamond, K. (2019). Problem-based learning and information literacy: Revising a technical writing class. In G. Veach (Ed.). *Teaching Information Literacy and Writing Studies* (pp. 157-168). Purdue University Press.

Donohoe, H., & Needham, R. (2009). Moving best practice forward: Delphi characteristics, advantages, potential problems, and solutions. *International Journal of Tourism Research, 11*(5), 415-437. https://doi.org/10.1002/jtr.709

Eisenberg, M.B., & Berkowitz, R.E. (1990). *Information problem solving: The Big Six skills approach to library & information skills instruction.* Ablex Publishing Corporation.

Fitzgibbons, M., Kloda, L., & Miller-Nesbitt, A. (2017). Exploring the value of academic librarians' participation in journal clubs. *College & Research Libraries, 78*(6), 774-788. https://doi.org/10.5860/crl.78.6.774

Fluk, L.R. (2015). Foregrounding the research log in information literacy instruction. *The Journal of Academic Librarianship, 41*(4), 488-498. https://doi.org/10.1016/j.acalib.2015.06.010

Foasberg, N. (2015). From Standards to Frameworks for IL: How the ACRL Framework addresses critiques of the standards. *Libraries and the Academy, 15*(4), 699-717. https://doi.org/10.1353/pla.2015.0045

Fourie, I., & Julien, H. (2019). Transfer of academic information literacy skills to workplace contexts. In *Proceedings of the Annual Conference of CAIS* (pp. 1-5).

Fowler, F.J. (1995). *Improving survey questions: Design and evaluation.* Sage Publications.

Fox, B.E., & Doherty, J.J. (2012). Design to learn, learn to design: Using backward design for information literacy instruction. *Communications in Information Literacy, 5*(2), 144-155. https://doi.org/10.15760/comminfolit.2012.5.2.109

Gardner, C.C., & White-Farnham, J. (2013). 'She has a vocabulary I just don't have': Faculty culture and information literacy collaboration. *Collaborative Librarianship, 5*(4), 235-242.

Garvey, M., Hays, A., & Stempler, A.F. (2017). A collaborative intervention: Measuring the impact of a flipped classroom approach on library one-shots for the composition classroom. *Collaborative Librarianship, 9*(4), 259-280.

Grafstein, A. (2002). A discipline-based approach to information literacy. *Journal of Academic Librarianship, 28*(4), 197-204. https://doi.org/10.1016/S0099-1333(02) 00283-5

Grassian, E.S., & Kaplowitz, J.R. (2009). *Information literacy instruction: Theory and practice* (2nd ed.)*.* Neal-Schuman.

Gross, M., Latham, D., & Julien, H. (2018). What the Framework means to me: Attitudes of academic librarians toward the ACRL Framework for Information Literacy for Higher Education. *Library and Information Science Research, 40*(3-4), 262-268. https://doi.org/10.1016/j.lisr.2018.09.008

Hays, D.G., & Singh, A.A. (2012). *Qualitative inquiry in clinical and educational settings.* Guilford.

Head, A.J. (2009). *What today's college students say about conducting research in the digital age*. Project Information Literacy. https://www.projectinfolit.org/uploads/2/7/5/4/27541717/2009_final_report.pdf

Head, A.J. (2016). *Staying smart: How today's graduates continue to learn once they complete college*. Project Information Literacy. https://www.projectinfolit.org/uploads/2/7/5/4/275 41717/staying_smart_pil_1_5_2016b_fullreport.pdf.

Head, A.J., & Eisenberg, M.B. (2010). *Truth be told: How college students evaluate and use information in the digital age*. Project Information Literacy. https://www.projectinfolit.org/uploads/2/7/5/4/27541717/pil_fall2010_survey_fullreport1 .pdf

Henry, J., Glauner, D., & Lefoe, G. (2015). A double shot of information literacy instruction at a community college. *Community & Junior College Libraries, 21*(1-2), 27-36.

Hess, A.N. (2015). Motivational design in information literacy instruction. *Communications in Information Literacy, 9*(1), 44-59. https://doi.org/ 10.15760/comminfolit.2015.9.1.175

Hess, A.N. & Greer, K. (2016). Designing for engagement: Using the ADDIE model to integrate high-impact practices into an online information literacy course. *Communications in Information Literacy, 10*(2), 264-282. https://doi.org/10.15760/comminfolit.2016.10.2.27

Hofer, A.R., Hanick, S.L., & Townsend, L. (2019). *Transforming information literacy instruction: Threshold concepts in theory and practice.* Libraries Unlimited.

Hofer, A.R., Townsend, L., & Brunetti, K. (2012). Troublesome concepts and information literacy: Investigating threshold concepts for IL instruction. *Libraries & the Academy, 12*(4), 387-405. doi: 10.1353/pla.2012.0039

Hoffman, N., Beatty, S., Feng, P., & Lee, J. (2017). Teaching research skills through embedded librarianship. *Reference Services Review, 45*(2), 211-226. https://doi.org/10.1108/RSR-07-2016-0045

Holderied, A. (2011). Instructional design for the active: Employing interactive technologies and

active learning exercises to enhance information literacy. *Journal of Information Literacy, 5*(1), 23-32. https://doi.org/10.11645/5.1.1519

Hunter, J., Kannegiser, S., Kiebler, J., & Meky, D. (2019). Chat reference: Evaluating customer service and IL instruction. *Reference Services Review, 47*(2), 134-150. https://doi.org/10.1108/RSR-02-2019-0006

Hurley, D.A., & Potter, R. (2017). Teaching with the framework: A Cephalonian approach. *Reference Services Review, 45*(1), 117-130. https://doi.org/10.1108/RSR-07-2016-0044

Ippoliti, C. (2018). Re-imagining the one-shot: The case for transformational teaching. *Scholarship of Teaching and Learning, Innovative Pedagogy, 1*(3), 6-16.

Jackman, L.W., & Weiner, S.A. (2016). The rescinding of the ACRL 2000 Information Literacy Competency Standards for Higher Education…Really?? *College & Undergraduate Libraries, 24*(1), 117-119. https://doi.org/10.1080/10691316.2016.1217811

Jacobson, T., & Xu, L. (2002). Motivating students in credit-based information literacy courses: Theories and practice. *portal: Libraries and the Academy, 2*(3), 423-441. https://doi.org/10.1353/pla.2002.0055

Jacobs, H.L.M., & Jacobs, D. (2009). Transforming the one-shot library session into pedagogical collaboration. *Reference & User Services Quarterly, 49*(1), 72-82. https://doi.org/10.5860/rusq.49n1.72

Jardine, S., Shropshire, S., & Koury, R. (2018). Credit-bearing information literacy courses in academic libraries: Comparing peers. *College & Research Libraries,79*(6), 768-784. https://doi.org/10.5860/crl.79.6.768

Johnson, M.E. (2019). Review of critical approaches to credit-bearing information literacy courses. *Journal of New Librarianship, 4,* 252-255. https://doi.org/10.21173/newlibs/6/19

Johnston, B., & Webber, S. (2003). Information literacy in higher education: A review and case study. *Studies in Higher Education, 28*(3), 335-352. https://doi.org/10.1080/03075070310000113441

Julien, H., & Genuis, S.K. (2011). Librarians' experiences of the teaching role: A national survey of librarians. *Library & Information Science Research, 33*, 103-111. https://doi.org/10.1016/j.lisr.2010.09.005

Julien, H., Gross, M., & Latham, D. (2018). Survey of information literacy instructional practices in U.S. academic libraries. *College & Research Libraries, 79*(2), 179-199. https://doi.org/10.5860/crl.79.2.179

Kay, R., & Ahmadpour, K. (2015). Information literacy - developing a framework for educators: A review of literature. In *Proceedings of EdMedia* (pp. 1079-1084).

Keeney, S., Hasson, F., & McKenna, H.P. (2011). *The Delphi technique in nursing and health research.* Wiley-Blackwell.

Kemp, J. (2006). Isn't being a librarian enough? Librarians as classroom teachers. *College & Undergraduate Libraries,13*(3), 4-23.

Kerr, S.T. (1983). Inside the black box: Making design decisions for instruction. *British Journal of Educational Technology, 14*(1), 45-58.

Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media, Culture & Society, 33*(2), 211-221. https://doi.org/10.1177/0163443710393382

Koo, T.K., & Li, M.Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine, 15*(2), 155-163. https://doi.org/10.1016/j.jcm.2016.02.012

Koufogiannakis, D. (2015). Determinants of evidence use in academic librarian decision making. *College & Research Libraries, 76*(1), 100-114. https://doi.org/10.5860/crl.76.1.100

Koufogiannakis, D., & Crumley, E. (2006). Research in librarianship: Issues to consider. *Library Hi Tech, 24*(3), 324-340. https://doi.org/10.1108/07378830610692109

Kuhlthau, C.C. (1988). Developing a model of the library search process: Cognitive and affective aspects. *RQ, 28*(2), 232-242.

Lacy, M., & Chen, H. (2013). Rethinking library instruction: Using learning-outcome based design to teach online search strategies. *Journal of Information Literacy, 7*(2), 126-148. https://doi.org/10.11645/7.2.1778

Låg, T. (2016). Flipped versus traditional classroom information literacy sessions: Student perceptions and cognitions. *Nordic Journal of Information Literacy in Higher Education, 8*(1), 45-50. https://doi.org/10.15845/noril.v8i1.260

Lankshear, C., & Knobel, M. (2008). Introduction: Digital literacies—Concepts, policies and practices. In C. Lankshear & M. Knobel (Eds.), *Digital literacies* (pp. 1-16). Peter Lang Publishing, Inc.

Latham, D., Gross, M., & Julien, H. (2019). Implementing the ACRL Framework: Reflections from the field. *College & Research Libraries, 80*(3), 386-400. https://doi.org/10.5860/crl.80.3.386

Leahy, K., Wilson, G., & Beatie, A. (2018). Giving a booster shot to your one-shot: Incorporating engaging activities into library instruction. In *Brick & Click Libraries Conference Proceedings* (pp. 65-71).

Leaning, M. (2019). An approach to digital literacy through the integration of media and

information literacy. *Media and Communication, 7*(2), 4-13.

https://doi.org/10.17645/mac.v7i2.1931

Leedy, P. D., & Ormrod, J. E. (2018). *Practical research: Planning and design* (12th

ed.). Pearson.

Linstone, H.A., & Turoff, M. (2002). Introduction. In H.A. Linstone & M. Turoff (Eds.), *The*

Delphi method: Techniques and applications (pp. 3-12). Addison-Wesley Publication

Company, Advanced Book Program.

Lloyd, A. (2006). Information literacy landscapes: An emerging picture. *Journal of*

Documentation, 62(5), 570-583. https://doi.org/10.1108/00220410610688723

Loo, J.L., Eifler, D., Smith, E., Pendse, L., He, J., Sholinbeck, M., Tanasse, G., Nelson, J.K., &

Dupuis, E.A. (2016). Flipped instruction for information literacy: Five instructional

cases of academic librarians. *The Journal of Academic Librarianship, 42*(3), 273-280.

https://doi.org/10.1016/j.acalib.2016.03.001

Lopez, S.A. (2018). Before and after quizzes in one shot library instruction. In *Proceedings of*

Online Northwest (pp. 1-7).

Mansourian, Y., & Ford, N. (2007). Search persistence and failure on the web: A 'bounded

rationality' and 'satisficing' analysis. *Journal of Documentation, 63*(5), 680-701.

https://doi.org/10.1108/00220410710827754

Maybee, C., Doan, T., & Flierl, M. (2016). Information literacy in the active learning classroom.

The Journal of Academic Librarianship, 42(6), 705-711.

https://doi.org/10.1016/j.acalib.2016.07.005

McGeough, R., & Rudick, C.K. (2018). "It was at the library; therefore it must be credible":
Mapping patterns of undergraduate heuristic decision-making. *Communication
Education, 67*(2), 165-184. https://doi.org/10.1080/03634523.2017.1409899

McGowan, B.S. (2019). Reimagining information literacy instruction in an evidence-based
practice nursing course for undergraduate students. *Journal of the Medical Library
Association, 107*(4), 572-578. https://doi.org/10.5195/jmla.2019.663

McGuinness, C. (2006). What faculty think—exploring the barriers to information literacy
development in undergraduate education. *The Journal of Academic Librarianship, 32*(6),
573-582

Mery, Y., Newby, J., & Peng, K. (2012). Why one-shot information literacy sessions are not the
future of instruction: A case for online credit courses. *College & Research Libraries,
73*(4), 366-377. https://doi.org/10.5860/crl-271

Miller, R.E. (2018). Reference consultations and student success outcomes. *Reference & User
Services Quarterly, 58*(1), 16-21. https://doi.org/10.5860/rusq.58.1.6836

Mudd, A., Summey, T., & Upson, M. (2015). It takes a village to design a course: Embedding a
librarian in course design. *Journal of Library & Information Services in Distance
Learning, 9*(1), 69-88. https://doi.org/10.1080/1533290X.2014.946349

Mullins, K. (2014). Good IDEA: Instructional design model for integrating information literacy.
The Journal of Academic Librarianship, 40(3-4), 339-349.

Mullins, K. (2016). IDEA model from theory to practice: Integrating information literacy in
academic courses. *The Journal of Academic Librarianship, 42*(1), 55-64.
https://doi.org/10.1016/j.acalib.2015.10.008

Murry, J.W., & Hammons, J.O. (1995). Delphi: A versatile methodology for conducting

qualitative research. *The Review of Higher Education, 18*(4), 423-436. https://doi.org/10.1353/rhe.1995.0008

Naisbitt, J. (1982). *Megatrends: Ten new directions transforming our lives.* Warner Books.

Naughton, B., Roberts, L., Dopson, S., Brindley, D., & Chapman, S. (2017). Medicine authentication technology as a counterfeit medicine-detection tool: A Delphi method study. *BMJ Open, 7*(5), 1-7. https://doi.org/10.1136/bmjopen-2016-013838

Neuman, D. (2011). Library media specialists: Premier information specialists for the information age. *TechTrends, 55*(4), 21-26.

Noe, N.W. (2013). *Creating and maintaining an information literacy instruction program in the twenty-first century: An ever-changing landscape.* Chandos Publishing.

Novitasari, D., Wulan, A.R., & Utari, S. (2018). Profile of information literacy on the 21st century through implementation of portfolio assessment. *International Conference on Mathematics and Science Education, 3,* 509-513.

Nworie, J. (2011). Using the Delphi technique in educational technology research. *TechTrends, 55*(5), 24-30 https://doi.org/10.1007/s11528-011-0524-6

Oakleaf, M. (2014). A roadmap for assessing student learning using the new framework for information literacy for higher education. *The Journal of Academic Librarianship, 40*(5), 510-514. http://dx.doi.org/10.1016/j.acalib.2014.08.001

Ocholla, D.N., & Le Roux, J. (2011). Conceptions and misconceptions of theoretical frameworks in library and information science research: A case study of selected theses and dissertations from eastern and southern African universities. *Mousaion, 29*(2), 61-74.

Okoli, C., & Pawlowski, S.D. (2004). The Delphi method as a research tool: An example, design considerations and applications. *Information & Management, 42*(1), 15-29.

Øvern, K.M. (2014). Faculty-library collaboration: Two pedagogical approaches. *Journal of Information Literacy, 8*(2), 36-55. https://dx.doi.org/10.11645/8.2.1910

Pinto, M., Cordón, J.A., & Díaz, R.G. (2010). Thirty years of information literacy (1977-2007): A terminological, conceptual and statistical analysis. *Journal of Librarianship and Information Science, 42*(1), 3-19. https://doi.org/10.1177/0961000609345091

Powell, S., & Kong, N.N. (2017). Beyond the one-shot: Intensive workshops as a platform for engaging the library in digital humanities. *College & Undergraduate Libraries, 24*(2-4), 516-531. https://doi.org/10.1080/10691316.2017.1336955

Quinn, J. (1994). Connecting education and practice in an instructional design graduate program. *Educational Technology Research and Development, 42*(3), 71-82.

Rader, H.B. (1990). Bibliographic instruction or information literacy. *College & Research Libraries News, 51*(1), 1-2.

Rader, H.B. (2002). Information literacy 1973-2002: A selected literature review. *Library Trends, 51*, 242-259.

Ragains, P. (2012). Teaching matters: Reshaping the role of information literacy instructional services. *Communications in Information Literacy, 6*(2), 138-140. https://doi.org/10.15760/comminfolit.2013.6.2.123

Ramana, V.S.V.L., Padmaja, A., & Reddy P.R. (2014). Curriculum design and instructional practices for experiential learning. In R. Natarajan (Ed.), *Proceedings of the International Conference on Transformations in Engineering Education* (pp. 541-551). Springer.

Raven, M., & Rodrigues, D. (2017). A course of our own: Taking an information literacy credit course from inception to reality. *The Canadian Journal of Library and Information Practice and Research, 12*(1), 1-20. https://doi.org/10.21083/partnership.v12i1.3907

Reeves, R.K., & Hahn, T.B. (2010). Job advertisements for recent graduates: Advising, curriculum, and job-seeking implications. *Journal of Education for Library and Information Science, 51*(2), 103-119.

Rice-Lively, M.L., & Racine, J.D. (1997). The role of academic librarians in the era of information technology. *Journal of Academic Librarianship, 23*(1), 31-41.

Richards, M., Bladek, M., & Okamoto, K. (2018). Interactive whiteboards in library instruction: Facilitating student engagement and active learning. *Practical Academic Librarianship: The International Journal of the SLA Academic Division, 8*(1), 1-27.

Richey, R.C., Klein, J.D., & Tracey, M.W. (2011). *The instructional design knowledge base: Theory, research, and practice.* Routledge.

Roberts, L. (2017). Research in the real world: Improving adult learners web search and evaluation skills through motivational design and problem-based learning. *College & Research Libraries, 78*(4), 527-551. https://doi.org/10.5860/crl.78.4.527

Rockman, I.F. (2003). Integrating information literacy into the learning outcomes of academic disciplines: A critical 21st century issue. *College & Research Libraries News, 64*(9), 1-4.

Rosman, T., Peter, J., Mayer, A-K., & Krampen, G. (2017). Conceptions of scientific knowledge influence learning of academic skills: Epistemic beliefs and the efficacy of information literacy instruction. *Studies in Higher Education, 43*(1), 96-113. https://doi.org/10.1080/03075079.2016.1156666

Rowe, G., & Wright, G. (1999). The Delphi technique as a forecasting tool: Issues and analysis. *International Journal of Forecasting, 15*(4), 353-375.

Saldana, J. (2009). *The coding manual for qualitative researchers.* Sage Publications.

Saracevic, T. (2000). Digital library evaluation: Toward an evolution of concepts. *Library*

Trends, 49, 350-369.

Saunders, L. (2015). Education for instruction: A review of LIS instruction syllabi. *The*

  Reference Librarian, 56(1), 1-21. https://doi.org/10.1080/02763877.2014.969392

Schiller, S.Z. (2016). CHAT for chat: Mediated learning in online chat virtual reference service.

  Computers in Human Behavior, 65, 651-665. https://doi.org/10.1016/j.chb.2016.06.053

Schroeder, R., & Cahoy, E.S. (2010). Valuing information literacy: Affective learning and the

  ACRL Standards. *Libraries and the Academy, 10*(2), 127-146.

  https://doi.org/10.1353/pla.0.0096

Scott, R. (2016). Accommodating faculty requests and staying true to your pedagogical ideals in

  the 1-shot information literacy session. *Communications in Information Literacy, 10*(2),

  132-142. https://doi.org/10.15760/comminfolit.2016.10.2.29

Shonrock, D.D., & Mulder, C. (1993). Instruction librarians: Acquiring the proficiencies critical

  to their work. *College & Research Libraries*, *54*, 137-49.

Simon, H.A. (1955). A behavioral model of rational choice. *The Quarterly Journal of*

  Economics, 69(1), 99-118.

Simon, H.A. (1972). Theories of bounded rationality. In C.B. McGuire & R. Radner (Eds.),

  Decision and organization (pp. 161-176). North-Holland Publishing Company.

Simon, H.A. (1990). Invariants of human behavior. *Annual Review of Psychology, 41,* 1-20.

  https://doi.org/10.1146/annurev.ps.41.020190.000245

Simon, H.A. (1996). *The sciences of the artificial* (3rd ed.). The MIT Press

Skulmoski, G.J., Hartman, F.T., & Krahn, J. (2007). The Delphi method for graduate research.

  Journal of Information Technology Education, 6, 1-21.

Small, R.V. (1988). School librarian and instructional design: A history intertwined. In K.H.

Latrobe (Ed.), *The emerging school library media center: historical issues and perspectives*. Libraries Unlimited.

Small, R.V., Zakaria, N., & El-Figuigui, H. (2004). Motivational aspects of information literacy skills instruction in community college libraries. *College & Research Libraries, 65*(2), 96-121. https://doi.org/10.5860/crl.65.2.96

Society of College, National and University Libraries. (2011). *The SCONUL seven pillars of information literacy: Core model for higher education*. https://www.sconul.ac.uk/sites/default/files/documents/coremodel.pdf

Sonntag, G. (2001). Report on the National Information Literacy Survey: Documenting progress throughout the United States. *College & Research Libraries News, 62*(10), 1-7.

Sproles, C., Johnson, A.M., & Farison, L. (2008). What the teachers are teaching: How MLIS programs are preparing academic librarians for instructional roles. *Journal of Education for Library and Information Science, 49*(3), 195-209.

Sullivan, G.M. (2011). A primer on the validity of assessment instruments. *Journal of Graduate Medical Education, 3*(2), 119-120. https://doi.org/10.4300/JGME-D-11-00075.1

Summey, T.P., & Valenti, S. (2013). But we don't have an instructional designer: Designing online library instruction using ISD techniques. *Journal of Library & Information Services in Distance Learning, 7*(1-2), 169-182. https://doi.org/10.1080/1533290X.2012.705630

Swoger, B.J.M., & Hoffman, K.D. (2015). Taking notes at the reference desk: Assessing and improving student learning. *Reference Services Review, 43*(2), 199-214. https://doi.org/10.1108/RSR-11-20114-0054

Tessmer, M., & Wedman, J.F. (1990). A layers-of-necessity instructional development model. *Educational Technology Research and Development, 38*(2), 77-85.

Thi Lan, N., & Tuamsuk, K. (2018). Factors influencing the collaboration between faculty and librarian at the universities: A literature review. *TLA Research Journal, 11*(2), 78-90.

Thompson, G.B. (2002). Information literacy accreditation mandates: What they mean for faculty and librarians. *Library Trends, 51*(2), 218-241.

Tokarz, R., & Bucy, R. (2019). Global information literacy: A content analysis of three journals. *Global Knowledge, Memory, and Communication, 68*(3), 242-254. https://doi.org/10.1108/GKMC-05-2018-0052

Townsend, L., Brunetti, K., & Hofer, A.R. (2011). Threshold concepts of information literacy. *Libraries and the Academy, 11*(3), 853-869.

Tran, C.Y., Miller, C.-A., & Aveni, D. (2018). Baseline assessment: Understanding WISE freshman students' information literacy skills in a one-shot library session. *Science & Technology Libraries, 37*(3), 302-321. https://doi.org/10.1080/0194262X.2018.1460651

United Nations Educational, Scientific and Cultural Organization. (2005). *Information literacy.* http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/information-literacy/

Van Epps, A., & Nelson, M.S. (2013). One-shot or embedded? Assessing different delivery timing for information resources relevant to assignments. *Evidence Based Library and Information Practice, 8*(1), 4-18.

Van Houlson, M.A. (2007). Getting results from one-shot instruction. *College & Undergraduate Libraries, 14*(1), 89-108. https://doi.org/10.1300/J106v14n01_07

Venturella, K., & Breland, M.V. (2019). Supporting the best: Professional development in

academic libraries. *Journal of New Librarianship, 4*, 283-292.

https://doi.org/10.21173/newlibs/6/22

von der Gracht, H.A. (2012). Consensus measurement in Delphi studies: Review and

implications for future quality assurance. *Technological Forecasting & Social Change, 79*(8), 1525-1536. https://doi.org/10.1016/j.techfore.2012.04.013

Walker, A.M., & Selfe, J. (1996). The Delphi method: A useful tool for the allied health

researcher. *British Journal of Therapy and Rehabilitation, 3*(12), 677-681.

Webber, S., & Johnston, B. (2017). Information literacy: Conceptions, context, and the formation

of a discipline. *Journal of Information Literacy, 11*(1), 156-183.

https://doi.org/10.11645/11.1.2205

Wedman, J.F., & Tessmer, M. (1991). Adapting instructional design to project circumstance:

The layers of necessity model. *Educational Technology, 31*(7), 48-52.

Wegener, D.R. (2018). We may be teaching information literacy, but are the design first year

students actually getting it? *The Journal of Academic Librarianship, 44*(5), 633-641.

https://doi.org/10.1016/j.aca.lib.2018.07.009

Westbrock, T., & Fabian, S. (2010). Proficiencies for instruction librarians: Is there still a

disconnect between professional education and professional responsibilities? *College & Research Libraries, 71*(6), 569-590. https://doi.org/10.5860/crl.-75r1

Wheeler, E., & McKinney, P. (2015). Are librarians teachers? Investigating academic librarians'

perceptions of their own teaching skills. *Journal of Information Literacy, 9*(2), 111-128.

https://doi.org/10.11645/9.2.1985

Wiggins, G.P., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Association for

Supervision and Curriculum Development.

Wiley, C., & Williams, J. (2015). Librarian as advisor: Information search process of undecided students and novice researchers. *NACADA Journal, 35*(1), 13-21.

Yadav, S. (2018). Changing trends in information literacy: An overview. In G. Rathinasabapathy, H. Raj, K. Veeranjaneyulu, & V.K. Bharti (Eds.), *Re-engineering of agricultural libraries and emerging technologies: Challenges and opportunities* (pp. 395-400). BS Publications.

Young, M.F. (1993). Instructional design for situated learning. *Educational Technology Research and Development, 41*(1), 43-58.

Yousuf, M.I. (2007). Using experts' opinions through Delphi technique. *Practical Assessment, Research & Evaluation, 12*(4), 1-7.

Zurkowski, P.G. (1974). *The information service environment relationships and priorities (Report No. 5)*. https://files.eric.ed.gov/fulltext/ED100391.pdf

Appendix A

Recruitment Messages

National academic library email listservs:

Hello –

My name is Kirsten Hostetler, and I'm an instructional design doctoral student at Old Dominion University. I'm also an instructional librarian at Central Oregon Community College. I'm looking for participants to include in a Delphi study as part of research on academic librarians' design decisions when planning and developing one-shot instructional sessions.
If you are an academic librarian who has at least three years' experience preparing and teaching one-shot sessions at a 2- or 4-year institution, I am interested in hearing about how you develop objectives, scaffold content, plan activities, evaluate learning, and generally make decisions when designing instruction.

A Delphi study uses an iterative survey approach, meaning, if you'd like to participate, you would respond to three written surveys using Qualtircs. The first survey is estimated to take approximately 30 minutes and the second and third surveys will take approximately 10 minutes each. It is estimated that there will be approximately three months from when you would receive the first survey and the last survey, as each survey is developed based on the responses from the previous survey. Responses to the survey will be confidential. Any personal identifiers will not be revealed during the analysis and summary of the findings. Your participation will be valuable in developing expert consensus on how academic librarians make design decisions.

To thank you for your involvement, for every completed round of surveys you participate in, you will be included in a drawing for a $50 Amazon gift certificate. The drawing will be held after all three rounds of surveys, and there will be one winner per round.

This project has been approved by Old Dominion University's Human Subjects Committee.

If you are interested in participating, please fill out this brief form to ensure you meet the study criteria: https://cocc.co1.qualtrics.com/jfe/form/SV_3yFxrhasQE25I4R By filling out this form, you are expressing interest in participating, and I will reach out to you via email with further instructions.

Please do not hesitate to contact me directly if you have any questions about this study or participating.

Thank you for your time!
Kirsten

Kirsten Hostetler
Instruction & Outreach Librarian

Central Oregon Community College
Bend, OR 07703

Social media:

Interested in improving the design process for one-shots #LibraryTwitter #critlib? I'm looking for participants in a Delphi study as part of my dissertation work. DMs are open, or respond to this survey if you're interested ow.ly/L1mx50y6e3t

DESIGNING FOR THE ONE-SHOT:
ESTABLISHING CONSENSUS FOR ACADEMIC LIBRARIANS' DESIGN PROCESSES

CALL FOR PARTICIPANTS

For more information and to express interest in participating:
https://bit.ly/37h0XeC

Appendix B

Participant Interest and Criteria Survey

Thank you for your interest in participating in this study!

Project Title: Designing for the one-shot: Establishing consensus for academic librarians' design processes

Introduction: You are being asked to participate in a research study that will develop a consensus among academic librarians about design judgments made when designing one-shot instructional sessions. This study will focus on your experiences designing one-shot sessions, the strategies you use when you teach one-shot sessions, and the training you have received to prepare you for your instructional responsibilities as an academic librarian.

The purpose of this short survey is for you to demonstrate interest in participating in this research and to determine if you meet the established criteria for inclusion in this study.

Study Procedures: If you agree to take part in this study, your participation will consist of:

1) Sharing your experiences designing one-shots, strategies used for teaching one-shots, and the formal and informal instructional training you have received in an open-ended, 10-question survey. You will have two weeks to respond to this approximately 40-50 minute survey.

2) Approximately two weeks after submitting your responses to the first survey, you will receive another survey where you will be asked to rank your responses and the reponses from other participants on a 5-point Likert scale. The number of questions and length of time to complete the survey will be dependent on responses to the first survey. You will have two weeks to respond to the second survey.

3) Approximately two weeks after submitting your responses to the second survey, you will receive another survey. You will see the statements from the second survey with your rankings along with the rankings of other participants. You will be asked to re-rank these statements on a 5-point Likert scale and be asked to provide a rationale if you choose to change the ranking you gave to a statement. The number of questions and length of time to complete the survey will be dependent on responses to the second survey. You will have two weeks to respond to the third survey.

Your participation in this study is entirely voluntary. You may withdraw from participating at any time.

Incentives: There will be a total of three rounds of surveys as part of this study. For every survey round you complete by the established deadline, you will be entered in a drawing to win a $50 Amazon gift card. If you complete all three rounds, you will have three possible chances to win the gift card.

Risks: There is no risk involved in your participation in this study.

Confidentiality: All information obtained about you in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations, and publications, but the researcher will not identify you.

Researchers:
Responsible Principal Investigator: Tian Luo, PhD, Assistant Professor, Instructional Design & Technology, STEM Education & Professional Studies, Old Dominion University

Investigator: Kirsten Hostetler, MLIS, Doctoral Candidate, Instructional Design & Technology, STEM Education & Professional Studies, Old Dominion University

Questions: If you have any questions or concerns about this research, you may contact Dr. Tian Luo at tluo@odu.edu or at (757) 683-5369, Kirsten Hostetler at khost004@odu.edu or at (541) 383-7563, or Dr. Laura Chezan, chair of the Darden College of Education Human Subjects Review Committee, Old Dominion University, at (757) 683-7055. All of these contacts will be glad to review the matter with you.

By proceeding to the next page of the survey, you are consenting to the terms outlined above.

How many years experience do you have working in an academic library?

○ 1-2 years

○ 3-5 years

○ 6-8 years

○ 9 years or more

In your role at the academic library, are you responsible for preparing and teaching one-shot instructional sessions?

○ Yes

○ No

As part of the sampling criteria for this study, participants should have experience teaching at least 100 one-shot sessions. In your estimate, do you believe you meet this criteria?

○ Yes

○ No

Did you receive your MLIS/MLS from an accredited program in the United States?

○ Yes

○ No

○ I do not have an MLIS/MLS

In what year did you receive your MLIS/MLS degree? (yyyy)

[   ]

Do you feel confident in your ability to describe your design process in writing?

○ Definitely yes

○ Probably yes

○ Probably not

○ Definitely not

Responses can only be included in the final analysis if participants complete all three rounds of surveys in this study. It is estimated you will receive one link a month for three months and have two weeks to respond to each survey. Do you believe you'll be able to commit to completing all three surveys?

○ Yes

○ No

What is your preferred email address for receiving communications regarding this study and the links to the survey?

[   ]

← →

Thank you again for the time you made today for completing this form and expressing interest in this study. Your response will help me ensure the consensus developed as part of this research is based on your instructional expertise.

You will hear from me within 3-5 business days to confirm your participation in this study.

Appendix C

Round One Survey

Designing for the one-shot: Establishing consensus for academic librarians' design processes

Welcome to round one!

You have agreed to participate in a research study that will develop a consensus among academic librarians about design judgments made when designing one-shot instructional sessions.

This survey contains 10 open-ended questions addressing the following topics:
- How you learned about the instructional techniques you use in one-shot instructional sessions;
- The preferred methods you use to design one-shots;
- And how you select the most appropriate methods for teaching one-shots.

Please read the questions carefully and provide detailed responses in the comment boxes. It is estimated that you will need 40-50 minutes to respond to this survey. You will be able to save your progress and continue at a later time if needed.

Upon completion of this survey, responses will be compiled into a list of best practices that will be sent to you for ranking in a separate survey. Subsequent surveys should last approximately 10 minutes, though this may change depending on the number of best practices identified. This will occur a maximum of three times. **In order to be included in subsequent survey rounds of this study, you will need to submit your responses by midnight on February 17.**

Your participation in this study is entirely voluntary. Your response to each of the questions is optional and you may withdraw from participating at any time.

Submitting your responses by the February 17 deadline will enter you in a drawing to win a $50 Amazon gift card. The winner of the drawing will be notified no later than February 28. If you complete all three rounds of surveys in this study, you will have three possible chances to win the gift card.

All information obtained about you in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations, and publications, but the researcher will not identify you.

If you have any questions or concerns about this research, you may contact the responsible principal investigator, Dr. Tian Luo at tluo@odu.edu or at (757) 683-5369; the investigator, Kirsten Hostetler at khost004@odu.edu or at (541) 383-7563; or Dr. Laura Chezan, chair of the Darden College of Education Human Subjects Review Committee, Old Dominion University, at (757) 683-7055. All of these contacts will be glad to review the matter with you.

By proceeding to the next page of the survey, you are consenting to the terms outlined above.

Thank you!

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Question 1: How well do you feel your MLS/MLIS prepared you for teaching one-shot sessions?

Question 2: How have you used professional development (i.e., additional coursework/degrees, independent researching, workshops/conferences, etc.) outside of your MLS/MLIS to develop your instructional competencies?

← →

Question 3: Walk through the process of the last one shot request you received. Please provide a description of anything you feel is relevant to the information you use to design the one-shot session. If applicable, address the information you received about students before entering the classroom, the level of interaction you had with the instructor, and the understanding you had about instructor expectations/objectives for your lesson.

Question 4: How familiar are you with design models (i.e., ADDIE, USER, IDEA, Information Search Process, Big Six etc.)? Please specify models that are relevant to your own design practices and where you learned of each model.

Question 5: Walk through your process of designing the last one-shot session you taught. Please provide a description of any models you used to design the session and be specific about the instructional strategies (i.e. discussion activities like the Jigsaw method, flipped classrooms, lecture and demonstration, knowledge checks with technology tools like Kahoot, problem-based learning, etc.) you included in your design.

Question 6: Describe your rationale for using your chosen model and/or strategy in the one-session you described in question 5. Did your knowledge of students, interaction with the instructor, or learning objectives influence this rationale? How so?

Question 7: How frequently do you use this model when you design one-shot sessions? How frequently do you use these strategies when teaching one-shot sessions? What other models and/or strategies do you use when designing one-shot sessions?

Question 8: Could you describe your rationale for when you decide to use a different design model and/or instructional strategy as the one you described in question 5? What factors do you consider when selecting a model and/or strategy?

Question 9: In an ideal scenario, if you had all the information you would want about students, the course, and the instructor, how might you design one-shots differently (though you still have the constraint of one visit to the class)? What model and/or strategies would you use and why?

Question 10: Are there any other aspects of your instructional training, preferred design processes, or how you select models/strategies that you'd like to discuss in further detail?

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Thank you for your time today in completing the round one survey!

Your responses are essential for developing the subsequent rounds of surveys and developing a consensus around design decisions.

I will be analyzing data from the first round responses over the next two weeks and will be in contact with the link to the second round survey on March 2. If you were selected to receive the $50 Amazon gift certificate, I will contact you no later than February 28.

In the meantime, if you have any questions or concerns, please contact me at khost004@odu.edu

Appendix D

Round Two Survey

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English ▼

Designing for the one-shot: Establishing consensus for academic librarians' design processes

Welcome to round two!

Thank you for your honest and thoughtful responses to the round one survey! This second survey is based on themes that were identified from the first survey responses.

This survey contains 73 Likert scale questions organized around this study's three research questions. It is estimated that you will need 15 minutes to complete this survey. You will be able to save your progress and continue at a later time if needed.

Upon completion of this survey, the statements indicated to be most relevant to design practices will be compiled and the least relevant statements will be removed to create the third round survey, which will be the final survey for this study. **In order to be included in the final survey round, you will need to submit your responses by midnight on March 16.**

Your participation in this study is entirely voluntary. Your response to each of the questions is optional and you may withdraw from participating at any time.

Submitting your responses by the March 16 deadline will enter you in a drawing to win a $50 Amazon gift card. The winner of the drawing will be notified no later than March 27. If you complete all three rounds of surveys in this study, you will have three possible chances to win the gift card.

All information obtained about you in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations, and publications, but the researcher will not identify you.

If you have any questions or concerns about this research, you may contact the responsible principal investigator, Dr. Tian Luo at tluo@odu.edu or at (757) 683-5369; the investigator, Kirsten Hostetler at khost004@odu.edu or at (541) 383-7563; or Dr. Laura Chezan, chair of the Darden College of Education Human Subjects Review Committee, Old Dominion University, at (757) 683-7055. All of these contacts will be glad to review the matter with you.

By proceeding to the next page of the survey, you are consenting to the terms outlined above.

Thank you!

0% [   ] 100%

>>

English ⌄

Section One:

The following questions were developed using responses to the round one survey regarding the following research question:

How do previous professional training experiences prepare academic librarians for instructional responsibilities?

Additionally, a comment box is included at the end of this section for you to note additional comments and/or questions to be included in the third round survey.

Please rate the relevance each statement has toward your experience with your graduate education's role in preparing you for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
Instruction, pedagogy, and instructional design *were* covered in my MLIS/MLS program as part of the core curriculum.	○	○	○	○
Instruction, pedagogy, and instructional design *were not* covered in my MLIS/MLS program as part of the core curriculum.	○	○	○	○
Instruction, pedagogy, or instructional design courses were confined to an academic track in my MLIS/MLS program that made it difficult to cross-train those who were not enrolled in that track.	○	○	○	○
I received instructional experience in my MLIS/MLS but needed additional training in theory.	○	○	○	○
I developed instructional skills in another graduate program outside my MLIS/MLS.	○	○	○	○

Please rate the relevance each statement has toward your experience with professional development in relation to your preparation for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I feel confident in my instructional skills and experience but look for additional opportunities to develop my understanding of pedagogy.	○	○	○	○
Membership in a professional organization (ACRL, state organization, etc.) is important to me as a means for accessing training, webinars, or conferences to develop my skills for instruction.	○	○	○	○
I developed my instructional skills through successes—and also failures—during one-shot sessions.	○	○	○	○
I observe peers teach to develop my instructional skills.	○	○	○	○
I rely on conferences to learn about strategies, trends, and design for one-shot instruction.	○	○	○	○
I rely on professional readings to learn about strategies, trends, and design for one-shot instruction.	○	○	○	○
The faculty development unit (i.e., Center for Teaching & Learning/Scholarship of Teaching & Learning) at my institution is a helpful resource for me to learn about pedagogy and instruction for one-shot instruction.	○	○	○	○
I rely on collaboration with my colleagues to learn about strategies, trends, and design for one-shot instruction.	○	○	○	○
I rely on webinars to learn about strategies, trends, and design for one-shot instruction.	○	○	○	○
I rely on listservs to learn about strategies, trends, and design for one-shot instruction.	○	○	○	○
I rely on instructional repositories to learn about lesson plans and strategies for one-shot instruction.	○	○	○	○

This space is optional for you to provide any additional comments or questions.

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English ⌄

Section Two:

The following questions were developed using responses to the round one survey regarding the following research question:

What strategies and models do academic librarians employ when designing one-shot instructional sessions?

Additionally, a comment box is included at the end of this section for you to note additional comments and/or questions to be included in the third round survey.

Please rate each statement based on the frequency with which you adopt the strategies for one-shot instruction using the following scale: 4 – Every time; 3 – Almost every time; 2 – Occasionally; 1 – Never.

	Every time	Almost every time	Occasionally	Never
Lecture providing an explanation of a concept or resource	○	○	○	○
Demonstration	○	○	○	○
Think-pair-share discussion	○	○	○	○
Small group discussions	○	○	○	○
Full class discussions	○	○	○	○
Flipped classroom activity	○	○	○	○
Use of student-generated examples for searching	○	○	○	○
Time for independent searching with one-on-one support	○	○	○	○
Peer-to-peer instruction	○	○	○	○
Small group activities	○	○	○	○
Knowledge checks involving technology tools (i.e., Padlet, Kahoot, Google Docs/Forms, Poll Everywhere, LibWizard, Clickers, etc.)	○	○	○	○
Analog knowledge checks (i.e., thumbs up/down, observation, written quizzes, etc.)	○	○	○	○
Pre-session assessment/questionnaire	○	○	○	○
Assessment activity during the one-shot	○	○	○	○
Reflection activity	○	○	○	○
Resources embedded in the Learning Management System (LMS)	○	○	○	○
Follow-up with students after the one-shot	○	○	○	○

Please rate each statement based on the frequency with which you adopt the models for designing one-shot instruction using the following scale: 4 – Every time; 3 – Almost every time; 2 – Occasionally; 1 – Never.

	Every time	Almost every time	Occasionally	Never
Backward Design Model (set outcomes and align instructional methods and assessment based on defined goals)	○	○	○	○
USER Design Model (following the stages of Understand, Structure, Engage, and Reflect as a roadmap for instructional planning)	○	○	○	○
ADDIE Framework (following the stages of Analysis, Design, Development, Implementation, and Evaluation as a road map for instructional planning)	○	○	○	○
Universal Design for Learning (framework to help develop a flexible learning environment for accessibility that can accommodate all learners)	○	○	○	○
Motivational Design Framework (following a model like Keller's Attention Relevance Confidence Satisfaction [ARCS] to account for student motivational factors)	○	○	○	○
Gagne's 9 Events of Instruction (following the relevant steps of this process to address the identified conditions of learning)	○	○	○	○

This space is optional for you to provide any additional comments or questions.

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Section Three:

The following questions were developed using responses to the round one survey regarding the following research question:

How do academic librarians make decisions when selecting strategies and models used for one-shots?

Additionally, a comment box is included at the end of this section for you to note additional comments and/or questions to be included in the third round survey.

Please rate each factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Previous experience teaching the same/similar one-shot	○	○	○	○
Familiarity with a design model	○	○	○	○
Knowledge of students experiences	○	○	○	○
Knowledge of students' technology literacy	○	○	○	○
Knowledge of class context (i.e., discipline, assignment, course level)	○	○	○	○
Relationship with instructor	○	○	○	○
ACRL Framework	○	○	○	○
Instructional program outcomes	○	○	○	○
Clear, defined outcomes	○	○	○	○
Instructor expectations	○	○	○	○
Available class time devoted to one-shot	○	○	○	○
Being innovative with my approach	○	○	○	○
Inclusion of active learning strategies	○	○	○	○
Lack of access to computers	○	○	○	○
Ability to assess students' skills	○	○	○	○
Ability to assess students' satisfaction	○	○	○	○
Instructor feedback	○	○	○	○

Please rate the relevance each statement has toward your experience with designing one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I reuse previous lesson plans because I feel comfortable with the instructor's expectations for the instruction.	○	○	○	○
I reuse previous lesson plans because of the quick turnaround between the request and delivery of the one-shot.	○	○	○	○
I find it difficult to design one-shots using design models because I do not have the time to devote to completing each step.	○	○	○	○
Design models are irrelevant to one-shots because the steps become subconscious when you do them so frequently.	○	○	○	○
Design models are irrelevant to one-shots because you do not have the necessary information about students or the course.	○	○	○	○
Design models inform my understanding of instruction, but do not influence my day-to-day work.	○	○	○	○
Design models are not helpful to my design process because I am not familiar with them.	○	○	○	○
I do not use a flipped classroom strategy because it is difficult to ensure student and faculty buy-in to out-of-class work.	○	○	○	○
The relationship with an instructor is essential to the success of a one-shot.	○	○	○	○
I am at the whim of an instructor in selecting strategies because if I get too creative without their approval, I might not get invited back.	○	○	○	○
Outcomes drive all elements of the design for a one-shot.	○	○	○	○
It can be difficult to adopt new strategies or models because one-shots are in such high-demand.	○	○	○	○
It can be difficult to be motivated in adopting new strategies or models for one-shots because I doubt their efficacy.	○	○	○	○
I adapt my lesson plan in the moment based on a "gut feeling" of what is working with students.	○	○	○	○
I try to be personable or use humor during instruction so that students will view librarians as friendly and the library as a valuable resource.	○	○	○	○
I select strategies that fit within the teaching style I have developed through experience teaching one-shots.	○	○	○	○
The strategies I select for one-shot instruction encourage application of skills that are immediately relevant to a course assignment.	○	○	○	○

This space is optional for you to provide any additional comments or questions.

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Thank you for your time today in completing the round two survey!

Your responses are essential for developing the final round survey and developing a consensus around design decisions.

I will be analyzing data from the second round responses over the next two weeks and will be in contact with the link to the second round survey on March 31. If you were selected to receive the $50 Amazon gift certificate, I will contact you no later than March 27.

In the meantime, if you have any questions or concerns, please contact me at khost004@odu.edu

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Appendix E

Round Three Survey

Designing for the one-shot: Establishing consensus for academic librarians' design processes

Welcome to the final survey—round three!

Thank you all for your continued efforts toward developing a consensus regarding one-shot design. The round one survey established your own best practices, the round two survey helped refine the group responses, and now the round three survey will be the last stage to further pare down the responses based on the group consensus.

This survey contains 31 required Likert scale questions and 31 optional comment boxes organized around this study's three research questions. The questions are the same statements from round two, but only includes those that received the highest average rankings from all respondents. You will be presented with the statement, the group average, and the standard deviation, and then you will be asked to re-rank the statement. Space will be provided to provide explanations about your response or why the statement is relevant/not relevant to your one-shot instruction practices.

It is estimated that you will need 20 minutes to complete this survey. You will be able to save your progress and continue at a later time if needed.

This is the final survey round. **In order to be included in data analysis and be eligible for the Amazon gift certificate, you will need to submit your responses by midnight on April 13.** The winner of the drawing will be notified no later than April 17.

Your participation in this study is entirely voluntary and you may withdraw from participating at any time.

All information obtained about you in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations, and publications, but the researcher will not identify you.

If you have any questions or concerns about this research, you may contact the responsible principal investigator, Dr. Tian Luo at tluo@odu.edu or at (757) 683-5369; the investigator, Kirsten Hostetler at khost004@odu.edu or at (541) 383-7563; or Dr. Laura Chezan, chair of the Darden College of Education Human Subjects Review Committee, Old Dominion University, at (757) 683-7055. All of these contacts will be glad to review the matter with you.

By proceeding to the next page of the survey, you are consenting to the terms outlined above.

Thank you!

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English ⌄

Section One:

The following statements represent the highest ranked statements from the round two survey addressing the following research question:

How do previous professional training experiences prepare academic librarians for instructional responsibilities?

Please review the statement and the group ranking information and then re-rank the statement. Any additional comments you make explaining your response or why the statement is relevant/not relevant to your one-shot instruction practices will be beneficial to the data analysis.

Mean Round Two Score: 3.28
Standard Deviation: .89
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with your graduate education's role in preparing you for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
Instruction, pedagogy, and instructional design *were not* covered in my MLIS/MLS program as part of the core curriculum.	○	○	○	○

Comments:

_____

Mean Round Two Score: 3.67
Standard Deviation: .59
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with professional development in relation to your preparation for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I feel confident in my instructional skills and experience but look for additional opportunities to develop my understanding of pedagogy.	○	○	○	○

Comments:

_____

Mean Round Two Score: 3.33
Standard Deviation: .84
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with professional development in relation to your preparation for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
Membership in a professional organization (ACRL, state organization, etc.) is important to me as a means for accessing training, webinars, or conferences to develop my skills for instruction.	○	○	○	○

Comments:

Mean Round Two Score: 3.61
Standard Deviation: .61
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with professional development in relation to your preparation for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I developed my instructional skills through successes—and also failures—during one-shot sessions.	○	○	○	○

Comments:

Mean Round Two Score: 3.11
Standard Deviation: .68
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with professional development in relation to your preparation for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I observe peers teach to develop my instructional skills.	○	○	○	○

Comments:

Mean Round Two Score: 3.33
Standard Deviation: .69
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with professional development in relation to your preparation for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I rely on professional readings to learn about strategies, trends, and design for one-shot instruction.	○	○	○	○

Comments:

[   ]

Mean Round Two Score: 3.22
Standard Deviation: .88
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with professional development in relation to your preparation for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I rely on collaboration with my colleagues to learn about strategies, trends, and design for one-shot instruction.	○	○	○	○

Comments:

[   ]

Mean Round Two Score: 3.00
Standard Deviation: .59
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with professional development in relation to your preparation for one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I rely on listservs to learn about strategies, trends, and design for one-shot instruction.	○	○	○	○

Comments:

[   ]

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English ⌄

Section Two:

The following statements represent the highest ranked statements from the round two survey addressing the following research question:

What strategies and models do academic librarians employ when designing one-shot instructional sessions?

Please review the statement and the group ranking information and then re-rank the statement. Any additional comments you make explaining your response or why the statement is relevant/not relevant to your one-shot instruction practices will be beneficial to the data analysis.

Mean Round Two Score: 3.28
Standard Deviation: .75
Your Score:

After considering the round two information, please once again rate the following statement based on the frequency with which you adopt the strategies for one-shot instruction using the following scale: 4 – Every time; 3 – Almost every time; 2 – Occasionally; 1 – Never.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Every time	Almost every time	Occasionally	Never
Demonstration	○	○	○	○

Comments:

[   ]

Mean Round Two Score: 3.00
Standard Deviation: .91
Your Score:

After considering the round two information, please once again rate the following statement based on the frequency with which you adopt the strategies for one-shot instruction using the following scale: 4 – Every time; 3 – Almost every time; 2 – Occasionally; 1 – Never.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Every time	Almost every time	Occasionally	Never
Time for independent searching with one-on-one support	○	○	○	○

Comments:

[   ]

Mean Round Two Score: 3.33
Standard Deviation: .97
Your Score:

After considering the round two information, please once again rate the following statement based on the frequency with which you adopt the models for designing one-shot instruction using the following scale: 4 – Every time; 3 – Almost every time; 2 – Occasionally; 1 – Never.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Every time	Almost every time	Occasionally	Never
Backward Design Model (set outcomes and align instructional methods and assessment based on defined goals)	○	○	○	○

Comments:

[   ]

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English ⌄

Section Three:

The following statements represent the highest ranked statements from the round two survey addressing the following research question:

How do academic librarians make decisions when selecting strategies and models used for one-shots?

Please review the statement and the group ranking information and then re-rank the statement. Any additional comments you make explaining your response or why the statement is relevant/not relevant to your one-shot instruction practices will be beneficial to the data analysis.

Mean Round Two Score: 3.39
Standard Deviation: .61
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Previous experience teaching the same/similar one-shot	○	○	○	○

Comments:
[   ]

Mean Round Two Score: 3.17
Standard Deviation: .62
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Knowledge of students' experiences	○	○	○	○

Comments:
[   ]

Mean Round Two Score: 3.89
Standard Deviation: .47
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Knowledge of class context (i.e., discipline, assignment, course level)	○	○	○	○

Comments:
[   ]

Mean Round Two Score: 3.33
Standard Deviation: .59
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Relationship with instructor	○	○	○	○

Comments:

Mean Round Two Score: 3.28
Standard Deviation: .67
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
ACRL Framework	○	○	○	○

Comments:

Mean Round Two Score: 3.22
Standard Deviation: .88
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Instructional program outcomes	○	○	○	○

Comments:

Mean Round Two Score: 3.67
Standard Deviation: .69
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Clear, defined outcomes	○	○	○	○

Comments:

Mean Round Two Score: 3.50
Standard Deviation: .71
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Instructor expectations	○	○	○	○

Comments:

Mean Round Two Score: 3.72
Standard Deviation: .67
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Available class time devoted to one-shot	○	○	○	○

Comments:

Mean Round Two Score: 3.50
Standard Deviation: .71
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Inclusion of active learning strategies	○	○	○	○

Comments:

Mean Round Two Score: 3.50
Standard Deviation: .62
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Lack of access to computers	○	○	○	○

Comments:

Mean Round Two Score: 3.00
Standard Deviation: .69
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Ability to assess students' skills	○	○	○	○

Comments:

Mean Round Two Score: 3.17
Standard Deviation: .71
Your Score:

After considering the round two information, please once again rate the following factor by how influential it is for you when making decisions about the strategies and models adopted for one-shot instruction using the following scale: 4 – Essential to my design; 3 – Important but not essential; 2 – Might consider in my design; 1 – Would not consider at all.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Essential to my design	Important but not essential	Might consider in my design	Would not consider at all
Instructor feedback	○	○	○	○

Comments:

Mean Round Two Score: 3.50
Standard Deviation: .71

After considering the round two information, please once again rate the relevance the following statement has toward your experience with designing one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I reuse previous lesson plans because I feel comfortable with the instructor's expectations for the instruction.	○	○	○	○

Comments:

Mean Round Two Score: 3.11
Standard Deviation: .76
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with designing one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I reuse previous lesson plans because of the quick turnaround between the request and delivery of the one-shot.	○	○	○	○

Comments:

Mean Round Two Score: 3.17
Standard Deviation: .79
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with designing one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
The relationship with an instructor is essential to the success of a one-shot.	○	○	○	○

Comments:

Mean Round Two Score: 3.00
Standard Deviation: .84
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with designing one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I adapt my lesson plan in the moment based on a "gut feeling" of what is working with students.	○	○	○	○

Comments:

Mean Round Two Score: 3.56
Standard Deviation: .51
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with designing one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I try to be personable or use humor during instruction so that students will view librarians as friendly and the library as a valuable resource.	○	○	○	○

Comments:

Mean Round Two Score: 3.50
Standard Deviation: .51
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with designing one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
I select strategies that fit within the teaching style I have developed through experience teaching one-shots.	○	○	○	○

Comments:
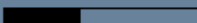
Mean Round Two Score: 3.72
Standard Deviation: .46
Your Score:

After considering the round two information, please once again rate the relevance the following statement has toward your experience with designing one-shot instruction using the following scale: 4 – Very true of my experiences; 3 – True of my experiences; 2 – Untrue of my experiences; 1 – Very untrue of my experiences.

After rating the statement, please include any comments about your ranking or why this statement is/is not relevant to your experiences.

	Very true of my experiences	True of my experiences	Untrue of my experiences	Very untrue of my experiences
The strategies I select for one-shot instruction encourage application of skills that are immediately relevant to a course assignment.	○	○	○	○

Comments:

0% 100%

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I cannot thank you enough for your dedication in completing the final round survey! Your responses have been essential to my research as I develop a consensus around design decisions.

If you were selected to receive the $50 Amazon gift certificate, I will contact you no later than April 17.

As this is the final round survey, this will be the last commuication you receive regarding this study. If you have any questions or are interested in hearing more about my dissertation, please feel free to contact me at khost004@odu.edu

0% ▬▬▬▬▬▬▬▬▬ 100%

Appendix F

Round One Survey Pattern and Descriptive Codes

Research Question Alignment	Initial Descriptive Code	Secondary Pattern Code	Code Description	Frequency
RQ3	Talking with faculty Relationship with instructor Ask for instructor feedback Dependent on instructor	Instructor	Base design judgements on comfort level/familiarity with instructor expectations/feedback or maintaining/building a relationship with instructor.	61
RQ3	What should students know Student needs Technology literacy	Student Experiences	Knowledge of students' previous experiences with the library or research influences selection of one-shot strategies/design model.	45
RQ3	Integration in the curriculum Students' struggles with assignment Students' level in a program	Class Context	Knowledge of class context (i.e., discipline, assignment, etc.) influences selection of one-shot strategies/design model.	39
RQ3	Objectives set up the approach Instructor expectations Student gaps Programmatic outcomes	Outcomes	Clear, defined outcomes as set by librarian or conversations with instructor influence selection of one-shot strategies/design model.	39

RQ3	Familiarity Reuse of lessons Close relationship with instructor Return to the same class	Previous Experience	Previous experience teaching the same or a similar one-shot influences selection of one-shot strategies/design model.	33
RQ2	Backward design Outcome driven Start with the gaps Working backward from outcomes	Backward	Librarian follows a Backward Design model for one-shots where outcomes are set and aligned with instructional and assessment methods.	26
RQ2	One-on-one time Students provide examples What are you researching	Student Centered	Preferred strategy for one-shot involves supporting students one-on-one or using student-generated examples.	26
RQ2	Group work Student teacher Peer instruction	Group Activities	Preferred strategy for one-shot involves small group activities like peer-to-peer instruction.	24
RQ3	One-shot limitation of time Overwhelmed with too many requests	Availability	Available time for instruction influences selection of one-shot strategies/design model.	24
RQ2	Explanation through lecture Demonstration	Lecture and Demo	Preferred strategy for one-shot involves a lecture and demonstration.	23

RQ2	Knowledge check	Knowledge Checks	Preferred strategy for one-shot involves knowledge checks (i.e., Padlet, Kahoot, Google Docs/Forms, thumbs up/down, written quizzes, etc.)	21
RQ1	ACRL Conferences LOEX	Conferences	Conferences are important for professional development of instructional skills.	15
RQ1	Peer observation I observe faculty all the time Learning from my colleagues	Collaboration	Collaboration and discussions with colleagues are important for professional development of instructional skills.	15
RQ2	Think pair share Discussion activities Group discussion	Discussion	Preferred strategy for one-shot involves a discussion activity (i.e., small group, large group, or think-pair-share).	15
RQ3	Subconscious steps Lack of confidence No experience with models Models feel clunky	Irrelevance	Design models are irrelevant to librarians' design processes due to lack of information about students, familiarity with various models, dedicated time to design, or the inefficacy of one-shots.	15

RQ1	Professional reading Journals Follow blogs and social media	Readings	Professional readings are important for professional development of instructional skills.	13
RQ2	Flipped classroom	Flipped	Preferred strategy for one-shot involves a flipped classroom activity.	13
RQ1	Webinars	Webinars	Webinars are important for professional development of instructional skills.	12
RQ1	I absolutely needed additional training	Outside MLIS	Instruction, pedagogy, and instructional design were not covered in MLIS program.	11
RQ1	Successes and failures in the classroom	Experience	Instructional skills developed through experience, both successes and failures.	11
RQ2	Satisfaction survey Skills test Observation of skills SAILS	Assessment	One-shot design always includes a form of assessment.	11
RQ3	Status quo On-demand requests Most efficient approach	Efficiency	Base design judgements on simplicity and efficiency due to quick turnaround between request and delivery of one-shots.	11

RQ3	Alignment Relevance What's the assignment	Relevance	Base design judgements on relevance to course assignment.	11
RQ1	ACRL membership ALA membership Access to training and funding	Membership	Membership in a professional organization (ACRL, state organization, etc.) is important as a means for accessing training, webinars, or conferences.	8
RQ2	Embedded in LMS Send resources after one-shot	Follow-up	One-shot design includes out-of-class resources embedded in a Learning Management System (LMS) or emailed directly to students.	8
RQ2	UDL Accessible design	UDL	Librarian follows the Universal Design for Learning (UDL) framework for one-shots, developing an accessible learning environment for instructional planning.	8
RQ3	Experience with model Comfort level Practice with model	Familiarity	Familiarity with a design model influences selection of one-shot strategies/design model.	8

RQ3	Need more pedagogy Engaging students with active learning Motivate students with fun activities Try something new	Innovation	Desire to be innovative or use active learning in the classroom influences selection of one-shot strategies/design model.	8
RQ3	Assessment What do students want Am I successful Students' skill level Satisfaction	Skills and Satisfaction	Ability to assess students' skills and satisfaction levels influence selection of one-shot strategies/design model.	8
RQ3	Lack of engagement Standard one-shot for an instructor Need student participation Instructor buy-in	Buy-in	Base design judgements on ability to get instructor/student buy-in.	8
RQ3	Gut feeling In the moment I know best	Gut Feeling	Base design judgements on "gut feeling" or previous experiences of what works best with students.	8
RQ1	Prepared me	MLIS	Instruction, pedagogy, and instructional design were covered in MLIS program as part of the core curriculum.	7

RQ1	Center for Teaching & Learning Scholarship of Teaching & Learning	SOTL	The faculty development unit (i.e., Center for Teaching & Learning/Scholarship of Teaching & Learning) is important for professional development of instructional skills.	7
RQ2	ADDIE	ADDIE	Librarian follows the ADDIE framework for one-shots, using the stages of Analysis, Design, Development, Implementation, and Evaluation for instructional planning.	7
RQ2	Motivation ARCS Engagement with students Start with attention Library instruction is relevant	Motivation	Librarian uses a motivational design framework (i.e., Keller's Attention, Relevance, Confidence, Satisfaction) to account for student motivational factors in one-shots.	7
RQ3	This works for me I feel comfortable with this approach Based on intuition	Intuition	Base design judgements on intuitive understanding of design models.	7
RQ3	Use of humor Turn to me for help Personable	Personable	Base design judgements on the ability to be personable so that students view librarians as a friendly, helpful resource.	7

RQ1	I need more venues for learning about teaching Need more experience with pedagogy	Pedagogy	Confident in instructional skills but expresses need for further professional development in pedagogy.	6
RQ3	Do I have time for design Feels like a burden Comfort level	Thoroughness	Base design judgements on ability to devote time to following steps of design models.	6
RQ3	Departmental support Programmatic outcomes	Program Outcomes	Institutional instructional program outcomes influence selection of one-shot strategies/design model.	6
RQ1	Observation Peer support	Peer Observation	Instructional skills developed through peer observation.	5
RQ1	I wouldn't feel confident without my other degree	Graduate Degree	Instructional skills were developed in another graduate program outside MLIS.	5
RQ3	ACRL Framework	ACRL Framework	The professional standards as outlined in the ACRL Framework influence selection of one-shot strategies/design model.	5
RQ1	Academic track Outcomes were covered One class	MLIS Track	Instruction, pedagogy, or instructional design courses were confined to an academic track in MLIS program.	4

RQ1	Listservs	Listservs	Listservs are important for professional development of instructional skills.	4
RQ1	Repositories	Repositories	Instructional repositories are important for professional development of instructional skills.	3
RQ2	USER	USER	Librarian follows the USER Design model for one-shots, using the stages of Understand, Structure, Engage, and Reflect for instructional planning.	3
RQ2	Gagne's Nine Events	Gagne	Librarian follows Gagne's Nine Events of Instruction, using the relevant steps of the conditions of learning for instructional planning.	3
RQ3	Technology skills	Technology Literacy	Knowledge of students' technology literacy and/or access to technology influences selection of one-shot strategies/design model.	2

Appendix G

Round One Survey Informative Quotes

Research Question Alignment	Pattern Code Support	Quote
RQ1	Conferences	"I try to go to 1-3 conferences a year to get some new ideas for things. I have a great lesson I learned from ACRL that I still use…I get ideas for what to teach about/how to teach in these sessions but often tweak for my sessions."
RQ1	Conferences Collaboration	"When I entered the profession, I was lucky in that I had colleagues who were willing to let me sit in on their sessions and take notes when it came to teaching the one-shot and then turned to conference programs on instruction to supplement this knowledge with theory."
RQ1	Collaboration	"Collaboration and debriefing with my colleagues is essential to me. We share our lesson plans, handouts, and tips with each other all the time. This is the best ongoing development for me as an instructor, discussion with other teaching librarians. I also am blessed with a few very involved, demanding, and highly professional instructors who never accept students not understanding or becoming disinterested. Those folks have helped me tremendously in sequencing of instruction, scope, and scaffolding of concepts from within a one-shot to across course sequences."
RQ1	MLIS	"I was able to take a class on library instruction as part of my program that helped introduce some of the tools and skills needed for one shot-instruction…we also covered learning outcomes. It was helpful, but I came from a teaching background prior to library school. It's hard to say whether or not it would have been enough if I hadn't already had that foundation to build on."
RQ1	MLIS	"My program had a class on information literacy instruction, and it was an excellent class, but it was not a required core course for all students, so it's possible that some students were able to get a degree without having taken it and none of these skills covered."

RQ1	Pedagogy Experience	"To get more experience, I do wish there were more venues for learning about teaching, specifically venues that are geared toward one shots. And not just trainings, I am looking for more than just: 'this worked for me, so you should try it!' I'd like to get experience building a pedagogical structure from the ground up, something along these kinds of line (either free or at an affordable rate) would be invaluable for academic librarians."
RQ1	Listservs Pedagogy Collaboration	"When I was hired for my first library job—which required a lot of teaching—I was working for an institution that did not have a lot of funding for professional development. Due to that, I looked for a lot of free or low-cost options on anything related to instruction…I subscribed to every free listserv I could find on instruction locally and nationally. I realized that I needed a teaching philosophy and to figure out what kind of pedagogy and learning techniques I wanted to continually use in the classroom…I used the resources colleagues shared to adapt to this new position."
RQ2	Backward	"I am most familiar with Backward Design model…which is heavily emphasized by our Teaching and Learning Center…learning outcomes, design assessment, design activities and content, reflect on how it went, start the process again. As the lead instructor in the library I have established the practice of following this model so every lesson ties back to learning outcomes from the start…it creates consistency across lessons and means that in an emergency almost anyone could teach the lesson because it's all laid out in the lesson plan."
RQ2	Backward	"Before I start, I like to have the request form, the syllabus, and the assignment description in front of me. Once I've reviewed these materials, I brainstorm what will be required of students to achieve these tasks and distill them into learning objectives for the session. Once I have developed learning objectives, I consider the assessments I can use to demonstrate that students achieved or at least approached these objectives."
RQ2	Backward	"I learned about backward design from our Teaching and Learning Center, and it sparked my interest. Now I start by creating my [Student Learning Objectives] and then begin building a lecture and assessments. There may be more to backward design than that, but that is what I do."

RQ2	Backward	"I think I recognize this model [Backward Design] and would say I use it informally pretty frequently. Like, I don't really sit down and follow it as a model step-by-step, but the idea of the model is how I generally think about my design process."
RQ2	Backward Assessment	"The biggest reason I adjusted my design practices to include formal learning objectives and going backward from there is because I began to appreciate the evidence of whether or not students learned something. I am careful to not assess only student satisfaction, as people tend to overestimate their research skills…but I always try to have some assessment that measures the actual skills themselves."
RQ2	Student Centered Group Activities Lecture and Demo Knowledge Checks Discussion	"I started with creating learning outcomes and building the plan based on those. I try to break my sessions up by having some lecture, showing a database, and then an activity to apply what was just taught. My last lesson plan started with a Kahoot to assess what they knew about the library before the class and where there are gaps. Then we talked about the library's website and where to find things relevant to their research before they had independent search time. Afterward, they repeated their search in Google to compare the two and then students shared their processes and thoughts in small groups."
RQ3	Instructor	"One-shots work very well when the instructor of the course is actively involved—asking questions (sometimes rhetorically), pointing out dynamics that connect back to the class. The success or failure of a one-shot, in my experience, is dependent on the involvement of the instructor."
RQ3	Instructor	"I generally don't have much information about the instructor and their desired outcomes when I teach a class, so I tend to have a number of things planned and I use what is appropriate in the moment while teaching."
RQ3	Instructor Student Experiences	"Most of the time the 'analysis' comes from the professor who, after just a few weeks or sometimes before they even meet the students, send me their opinions of the students. Most of the time these are not accurate portrayals of the individuals and I wonder how much the professor is also relying on previous knowledge and makes assumptions about their learners like we do."

RQ3	Student Experiences Class Context	"My rationale for how I will set up an instruction session is based first on assumptions about the information literacy and academic developmental level of the students. It isn't just the course number because even some 200-level courses do not have any previous courses required."
RQ3	Outcomes	"The learning objectives I developed in conjunction with the instructor were the biggest influence on what was covered and how. I really work to ensure that each one-shot is tailored to the assignments and students in that class so that everyone leaves feeling like they have something that they can apply or do immediately after."
RQ3	Previous Experience	"I've been teaching for several years now, so the last session I taught was an Endnote session, which I've done a million times, so my design process for that one-shot looked like: find the old lesson plan, copy it, update the logistics (room, date, time), and make sure I hit the highlights and go teach."
RQ3	Previous Experience Irrelevance Efficiency	"I use this model every single time I design and teach one-shot sessions. It is the one I'm most comfortable with and because of that it saves me time by using it over and over. It has become a subconscious habit and I don't even label the steps as I'm doing them."
RQ3	Relevance	"Our main goal usually is to get students started on their research for a particular assignment, so it's really important that students get an opportunity to interact with the tools and resources in a manner that is authentic in the context of their individual assignments. This lends traction and 'grippiness' to the learning if it can be applied in close proximity to exposure to the content."
RQ3	Student Experiences Class Context	"The more I know about students and where they are in class the better, but I often don't know too much before I enter the classroom, so it's essential but I adapt because otherwise I wouldn't be able to teach!"

Appendix H

Round Two Survey Descriptive Statistics

Statement	4 Very true/ Every time/ Essential	3 True of my experiences/ Almost every time/ Important	2 Untrue of my experiences/ Occasionally /Might consider	1 Very untrue/ Never/ Would not consider	M	SD
Instruction, pedagogy, and instructional design *were* covered in my MLIS/MLS program as part of the core curriculum.	0%	33%	17%	50%	1.83	0.92
Instruction, pedagogy, and instructional design *were not* covered in my MLIS/MLS program as part of the core curriculum.	55%	17%	28%	0%	3.28*	0.89
Instruction, pedagogy, or instructional design courses were confined to an academic track in my MLIS/MLS program that made it difficult to cross-train those who were not enrolled in that track.	6%	39%	33%	22%	2.28	0.89
I received instructional experience in my MLIS/MLS but needed additional training in theory.	17%	39%	17%	27%	2.44	1.10
I developed instructional skills in another graduate program outside my MLIS/MLS.	28%	11%	22%	39%	2.28	1.27
I feel confident in my instructional skills and experience but look for additional opportunities to develop my understanding of pedagogy.	72%	22%	6%	0%	3.67*	0.59

Membership in a professional organization (ACRL, state organization, etc.) is important to me as a means for accessing training, webinars, or conferences to develop my skills for instruction.	56%	22%	22%	0%	3.33*	0.84
I developed my instructional skills through successes—and also failures—during one-shot sessions.	67%	27%	6%	0%	3.61*	0.61
I observe peers teach to develop my instructional skills.	22%	72%	0%	6%	3.11*	0.68
I rely on conferences to learn about strategies, trends, and design for one-shot instruction.	28%	33%	33%	6%	2.83	0.92
I rely on professional readings to learn about strategies, trends, and design for one-shot instruction.	44%	44%	12%	0%	3.33*	0.69
The faculty development unit (i.e., Center for Teaching & Learning/Scholarship of Teaching & Learning) at my institution is a helpful resource for me to learn about pedagogy and instruction for one-shot instruction.	6%	39%	33%	22%	2.28	0.89
I rely on collaboration with my colleagues to learn about strategies, trends, and design for one-shot instruction.	44%	39%	11%	6%	3.22*	0.88
I rely on webinars to learn about strategies, trends, and design for one-shot instruction.	11%	61%	28%	0%	2.83	0.62
I rely on listservs to learn about strategies, trends, and design for one-shot instruction.	17%	66%	17%	0%	3.00*	0.59

I rely on instructional repositories to learn about lesson plans and strategies for one-shot instruction.	22%	33%	45%	0%	2.78	0.81
Lecture providing an explanation of a concept or resource	22%	50%	28%	0%	2.94	0.73
Demonstration	44%	39%	17%	0%	3.28*	0.75
Think-pair-share discussion	6%	38%	56%	0%	2.50	0.62
Small group discussions	17%	17%	60%	6%	2.44	0.86
Full class discussions	28%	39%	33%	0%	2.94	0.80
Flipped classroom activity	0%	6%	61%	33%	1.72	0.57
Use of student-generated examples for searching	6%	56%	38%	0%	2.67	0.59
Time for independent searching with one-on-one support	33%	39%	22%	6%	3.0*	0.91
Peer-to-peer instruction	0%	22%	67%	11%	2.11	0.58
Small group activities	22%	39%	39%	0%	2.83	0.79
Knowledge checks involving technology tools (i.e., Padlet, Kahoot, Google Docs/Forms, Poll Everywhere, LibWizard, Clickers, etc.)	0%	11%	61%	28%	1.83	0.62
Analog knowledge checks (i.e., thumbs up/down, observation, written quizzes, etc.)	38%	17%	28%	17%	2.78	1.17
Pre-session assessment/questionnaire	0%	0%	56%	44%	1.56	0.51
Assessment activity during the one-shot	11%	33%	28%	28%	2.28	1.02
Reflection activity	6%	22%	50%	22%	2.11	0.83
Resources embedded in the Learning Management System (LMS)	11%	17%	39%	33%	2.06	1.00
Follow-up with students after the one-shot	0%	22%	56%	22%	2.00	0.69
Backward Design Model (set outcomes and align instructional methods and assessment based on defined goals)	60%	17%	17%	6%	3.33*	0.97

USER Design Model (following the stages of Understand, Structure, Engage, and Reflect as a roadmap for instructional planning)	0%	11%	28%	61%	1.50	0.71
ADDIE Framework (following the stages of Analysis, Design, Development, Implementation, and Evaluation as a road map for instructional planning)	0%	11%	33%	56%	1.56	0.70
Universal Design for Learning (framework to help develop a flexible learning environment for accessibility that can accommodate all learners)	22%	34%	22%	22%	2.56	1.10
Motivational Design Framework (following a model like Keller's Attention Relevance Confidence Satisfaction [ARCS] to account for student motivational factors)	0%	6%	22%	72%	1.33	0.59
Gagne's 9 Events of Instruction (following the relevant steps of this process to address the identified conditions of learning)	6%	6%	16%	72%	1.44	0.86
Previous experience teaching the same/similar one-shot	44%	50%	6%	0%	3.39*	0.61
Familiarity with a design model	11%	61%	17%	11%	2.72	0.83
Knowledge of students' experiences	28%	61%	11%	0%	3.17*	0.62
Knowledge of students' technology literacy	17%	61%	22%	0%	2.94	0.64
Knowledge of class context (i.e., discipline, assignment, course level)	94%	0%	6%	0%	3.89*	0.47
Relationship with instructor	38%	56%	6%	0%	3.33*	0.59
ACRL Framework	39%	50%	11%	0%	3.28*	0.67

Instructional program outcomes	44%	39%	11%	6%	3.22* 0.88
Clear, defined outcomes	78%	11%	11%	0%	3.67* 0.69
Instructor expectations	61%	28%	11%	0%	3.50* 0.71
Available class time devoted to one-shot	83%	6%	11%	0%	3.72* 0.67
Being innovative with my approach	6%	56%	38%	0%	2.67 0.59
Inclusion of active learning strategies	61%	28%	11%	0%	3.50* 0.71
Lack of access to computers	56%	38%	6%	0%	3.50* 0.62
Ability to assess students' skills	22%	56%	22%	0%	3.00* 0.69
Ability to assess students' satisfaction	6%	72%	11%	11%	2.72 0.75
Instructor feedback	33%	50%	17%	0%	3.17* 0.71
I reuse previous lesson plans because I feel comfortable with the instructor's expectations for the instruction.	61%	28%	11%	0%	3.50* 0.71
I reuse previous lesson plans because of the quick turnaround between the request and delivery of the one-shot.	33%	45%	22%	0%	3.11* 0.76
I find it difficult to design one-shots using design models because I do not have the time to devote to completing each step.	6%	38%	50%	6%	2.44 0.70
Design models are irrelevant to one-shots because the steps become subconscious when you do them so frequently.	11%	28%	50%	11%	2.39 0.85
Design models are irrelevant to one-shots because you do not have the necessary information about students or the course.	0%	28%	61%	11%	2.17 0.62
Design models inform my understanding of instruction, but do not influence my day-to-day work.	11%	28%	55%	6%	2.44 0.78

Design models are not helpful to my design process because I am not familiar with them.	11%	22%	39%	28%	2.17	0.99
I do not use a flipped classroom strategy because it is difficult to ensure student and faculty buy-in to out-of-class work.	22%	50%	28%	0%	2.94	0.73
The relationship with an instructor is essential to the success of a one-shot.	39%	39%	22%	0%	3.17*	0.79
I am at the whim of an instructor in selecting strategies because if I get too creative without their approval, I might not get invited back.	0%	11%	61%	28%	1.83	0.62
Outcomes drive all elements of the design for a one-shot.	22%	45%	22%	11%	2.78	0.94
It can be difficult to adopt new strategies or models because one-shots are in such high-demand.	11%	44%	45%	0%	2.67	0.69
It can be difficult to be motivated in adopting new strategies or models for one-shots because I doubt their efficacy.	11%	11%	67%	11%	2.22	0.81
I adapt my lesson plan in the moment based on a "gut feeling" of what is working with students.	28%	50%	16%	6%	3.00*	0.84
I try to be personable or use humor during instruction so that students will view librarians as friendly and the library as a valuable resource.	56%	44%	0%	0%	3.56*	0.51
I select strategies that fit within the teaching style I have developed through experience teaching one-shots.	50%	50%	0%	0%	3.50*	0.51

The strategies I select for one-shot instruction encourage application of skills that are immediately relevant to a course assignment.	72%	28%	0%	0%	3.72*	0.46

*Statements that met the minimum threshold for inclusion in the final survey.

Appendix I

Round Three Survey Descriptive Statistics

Statement	4 Very true/ Every time/ Essential	3 True of my experiences/ Almost every time/ Important	2 Untrue of my experiences/ Occasionally /Might consider	1 Very untrue/ Never/ Would not consider	*M*	*SD*
Instruction, pedagogy, and instructional design *were not* covered in my MLIS/MLS program as part of the core curriculum.	53%	35%	12%	0%	3.41*	0.71
I feel confident in my instructional skills and experience but look for additional opportunities to develop my understanding of pedagogy.	71%	12%	17%	0%	3.53	0.80
Membership in a professional organization (ACRL, state organization, etc.) is important to me as a means for accessing training, webinars, or conferences to develop my skills for instruction.	41%	47%	6%	6%	3.24	0.83
I developed my instructional skills through successes—and also failures—during one-shot sessions.	71%	23%	6%	0%	3.65*	0.61
I observe peers teach to develop my instructional skills.	24%	65%	11%	0%	3.12*	0.60
I rely on professional readings to learn about strategies, trends, and design for one-shot instruction.	53%	29%	18%	0%	3.35	0.79

I rely on collaboration with my colleagues to learn about strategies, trends, and design for one-shot instruction.	47%	47%	6%	0%	3.41*	0.62
I rely on listservs to learn about strategies, trends, and design for one-shot instruction.	18%	71%	11%	0%	3.06*	0.56
Demonstration	53%	47%	0%	0%	3.53*	0.51
Time for independent searching with one-on-one support	24%	47%	29%	0%	2.94	0.75
Backward Design Model (set outcomes and align instructional methods and assessment based on defined goals)	41%	41%	18%	0%	3.24*	0.75
Previous experience teaching the same/similar one-shot	65%	29%	6%	0%	3.59*	0.62
Knowledge of students' experiences	35%	65%	0%	0%	3.35*	0.49
Knowledge of class context (i.e., discipline, assignment, course level)	82%	18%	0%	0%	3.82*	0.39
Relationship with instructor	18%	64%	18%	0%	3.00*	0.61
ACRL Framework	35%	41%	24%	0%	3.12	0.78
Instructional program outcomes	41%	41%	12%	6%	3.18	0.88
Clear, defined outcomes	65%	29%	6%	0%	3.59*	0.62
Instructor expectations	65%	35%	0%	0%	3.65*	0.49
Available class time devoted to one-shot	76%	24%	0%	0%	3.76*	0.44
Inclusion of active learning strategies	53%	47%	0%	0%	3.53*	0.51
Lack of access to computers	47%	35%	18%	0%	3.29	0.77
Ability to assess students' skills	18%	71%	11%	0%	3.06*	0.56
Instructor feedback	41%	35%	24%	0%	3.18	0.81
I reuse previous lesson plans because I feel comfortable with the instructor's expectations for the instruction.	53%	47%	0%	0%	3.53*	0.51

I reuse previous lesson plans because of the quick turnaround between the request and delivery of the one-shot.	41%	41%	12%	6%	3.18	0.88
The relationship with an instructor is essential to the success of a one-shot.	18%	53%	29%	0%	2.88	0.70
I adapt my lesson plan in the moment based on a "gut feeling" of what is working with students.	41%	47%	6%	6%	3.24	0.83
I try to be personable or use humor during instruction so that students will view librarians as friendly and the library as a valuable resource.	65%	29%	6%	0%	3.59*	0.62
I select strategies that fit within the teaching style I have developed through experience teaching one-shots.	65%	35%	0%	0%	3.65*	0.49
The strategies I select for one-shot instruction encourage application of skills that are immediately relevant to a course assignment.	88%	12%	0%	0%	3.88*	0.33

*Statements that met the minimum threshold for inclusion in the final consensus.