



NATIONAL LEADERSHIP GRANTS FOR LIBRARIES

Sample Application LG-260057-OLS-26
Project Category: Applied Research

University of North Texas College of Information

Amount awarded by IMLS:	\$428,159
Amount of cost share:	\$0

The Department of Data Science, College of Information at the University of North Texas will provide research to enhance library services for academic library users' multiple-literacy needs in the digital era, strengthen student academic success, and contribute to the library's increased impact in its communities. This project supports the development and implementation of literacy practices in libraries, strengthening the capacity of libraries to provide services to users who are on track to take higher-paying jobs after completing their higher education training. This project will use mixed methods to investigate undergraduate students' multi-literacy needs and academic library instructional services offered to support student success. The project will construct and validate a multi-literacy survey instrument based on a literature review, open-ended question survey, and focus groups with students. The instrument will be validated with experts and statistical analysis. The survey will be reviewed by librarians and experts on the potential of library instruction.

Attached are the following components excerpted from the original application.

- Narrative
- Schedule of completion

When preparing an application for the next deadline, be sure to follow the instructions in the most recent Notice of Funding Opportunity for the grant program to which you are applying.

Creating a Multiple-Literacy Scale to Enhance Academic Library Instructional Services

1. Introduction

The University of North Texas is seeking \$428,159 for a 3-year Applied Research grant project that aims to enhance library services for academic library users' multiple-literacy needs in the digital era, strengthen student academic success, and contribute to the library's increased impact in its communities. This project supports the development and implementation of literacy practices in libraries, strengthening the capacity of libraries to provide services to users who are on track to take higher-paying jobs after completing their higher education training. This aligns with the IMLS agency-level Goal 1 and Objective 1.2, and the **National Leadership Grants for Libraries** agency goal, Objective 1, to strengthen library and archival services for the American public, and to serve the learning needs of the public through libraries and archives. The project aims to achieve a better understanding of current practice and knowledge in literacy education for students, and to promote awareness of and support for this practice in the library field. The project team intends to survey undergraduate and graduate students from 3 different geographic locations: an urban community college, an urban university, and a university in a college town near a major metroplex. This research investigates three research questions: RQ1: What are the academic library users' multiple literacy needs among different student demographics? RQ2: What is the status of academic library practice in the service of users' multiple literacies? RQ3: What innovative services can be implemented by academic libraries to address the gaps in users' multiple literacy needs to enhance their academic success?

2. Project Justification

The information society requires current students to acquire multi-faceted literacy skills that go beyond traditional reading and writing to survive in challenging academic settings: digital, analytical, civic, financial, health, and multi-lingual and multi-cultural skills. These skills involve developing critical thinking, leadership, communication, technological, and analytical skills. There are societal, organizational, and individual needs to utilize multiple literacies in academic libraries, including civic literacy, information literacy, data literacy, and health literacy.

2.1. Needs Assessment

2.1.1 Civic literacy. Libraries are expected to promote civic education, build bridges between community members and government entities, and teach Americans about their heritage and history. Robert Putman (2000) described a society lacking civic engagement as "bowling alone," which was caused by the technical transformation of leisure. Winthrop (2020) argued that the value of civic learning is "foundational to helping young people develop the dispositions needed to actively engage in civic life and maintain the norms by which Americans debate and decide their differences." Recently, the Pew Research Center found that the need for civic literacy education is even more urgent, as only 34% of Americans agreed that "most people can be trusted" in 2023-2024, a decline from 46% in 1972 (Silver et al., 2025). A 2024 survey by the American Council of Trustees and Alumni (ACTA) suggested that developing students' civic literacy and encouraging them to participate in civic engagement is currently one of the top priorities for many higher education institutions (Doyle, 2024).

2.1.2 Information, Digital, and Data Literacies. Information literacy skills remain one of the most critical training domains for the American future workforce in high-paying jobs. The definition of information literacy evolves from the ability to "recognize when information is needed and to locate, evaluate, and use effectively the needed information" and the life-long learning skills to "have learned and how to learn" (American Library Association, 1989) to a modern framework that emphasizes information creation, sharing, and ethical context. For example, the ARCL information literacy competency standards for Higher Education (Association of College & Research Libraries, 2020) set up the learning goals for information literacy education beyond the traditional bibliographic and information search skills: an information literate

individual can select, access, evaluate information, and incorporate new information to knowledge base and use information effectively and ethically to solve real-life social problems. However, many of the information literacy instruction sessions in academic libraries are “one-shot” lessons with limited content for effective teaching (Bishop et al., 2023). In addition, generative AI tools provide faster, synthesized, and readily available answers to coursework, making manual searching, filtering, and basic critical-thinking skills seemingly labor-intensive and obsolete (Badke, 2023). AI literacy builds on digital literacy by equipping students with the knowledge, skills, and ethical awareness needed to understand how AI systems function, evaluate AI-generated information, and use AI tools responsibly in academic, professional, and civic contexts (Miao et al., 2024).

National Skills Coalition (2023) reported that 92% of jobs they analyzed require digital skills, while one-third of workers have low or no digital skills. Libraries play important roles in preparing the future workforce with multiple skill sets, partnering with industry-competitive apprenticeship programs, and fulfilling the mission of public training for the future workforce. Digital literacy consists of a wide range of competencies that enable students to navigate, comprehend, and critically engage with the digital world, such as information access, critical thinking, communication, cybersecurity, innovation, creativity, and adaptability (IJDL, 2023).

2.1.3 Health and Financial Literacies. In addition to academic pressure, mental health and emotional stress continue to be the number one reason for college students’ intention to drop out. Health literacy refers to “how well a person can get the health information and services that they need, and how well they understand them. It is also about using them to make good health decisions” (National Library of Medicine, 2016). Current data show that only 12% of American adults are proficient in health literacy (Winkelman et al., 2016; Armstrong-Heimsoth et al., 2017), and nine out of ten adults have problems finding and using health information to make decisions about their health (US Centers for Disease Control and Prevention, 2024). A Gallop News report (Marken, 2024) indicated that nationally, 35% of college students reported considering dropping out of their programs within the last six months, with 54% reporting emotional stress and 43% reporting mental health reasons. Academic librarians play an important role in providing critical health literacy resources, guides, and programs to college students, thereby contributing to student retention and success.

Another critical factor to ensure student success in college is financial literacy. A national survey by Ellucian (2024), a higher education software company, revealed 59% of college students considered dropping out of their programs. Library-based financial literacy education is another important component of multiple literacies that maintains the resources and guides to support college student success. The Reference and User Services Association (RUSA) recognized the need for librarians to provide financial literacy education programs and published the guidelines for such programs (Keller et al., 2017).

In summary, there is a critical need for librarians to understand the needs of multiple literacy skills of students and incorporate the training of multiple literacies in library programming and training, which might include learning components such as information-seeking skills, digital literacy, reading literacy, civic literacy, data literacy, and financial and health literacy.

2.2 Research Gaps

2.2.1 Lack of Holistic Review of Multi-Literacy Needs for Students

Students’ access to multiple literacy instruction from libraries is vital for their academic success and resilience-building. Students often rely on Google search or Generative AI tools to find answers for their research projects but miss authoritative sources or fail to generate accurate or complete queries. They may not realize the access to professional services to decode, interpret, and analyze information tasks from librarians, who may often lack adequate resources to integrate literacy programs into library services (D’Angelo & Maid, 2004; Sanabria & Trott, 2025).

Previous publications on library instruction services focused on one or a few areas of user literacy training, and academic libraries traditionally teach information literacy classes to a general audience around the information resources and information use. Hence, there is a lack of studies that provide holistic views of students' multi-literacy needs (New London Group, 1996; Pinto et al, 2024). Specifically, little has been addressed in library literature regarding the needs of undergraduate students with a focus on student success indicators such as retention and graduation rates.

2.2.2 Lack of Theoretical Framework to Teach Multi-Literacies in Libraries

There are two common professional information literacy education standards. One is the ALA ACRL Framework for Information Literacy for Higher Education (Association for College and Research Libraries, 2020; 2025), which provide a framework for teaching and evaluating information literacy education in academic libraries, based on its 2016 standard. The other standards are the American Association of School Librarians (2025) standards, which are used by school librarians and educators. These standards provide guidance for teaching students to find, evaluate, and use information effectively. The AASL standards incorporate information literacy with media and digital literacy, digital citizenship, data-driven decisions, ethical technology use, and inquiry-based learning.

Budd (2018) reviewed recent studies on library instruction and suggested that Mackey and Jacobson's (2014) concept of metaliteracy and Howard Gardner's multiple intelligences offer research directions for multiple literacies (p. 346). Gardner (1983) proposed that human intelligence is not a single ability but a collection of distinct types. He identified eight intelligences, including linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic (Merenus, 2025). His theory suggests that everyone has different strengths and learning styles across these areas.

Gardner's multiple intelligences can be assessed using self-report questionnaires, expert observations, and performance-based tasks, such as the MI Assessment Questionnaire (Literacynet.org, N/D; Armstrong, 2020; Psychology Today, 2026). Gardner's multiple intelligences theory has inspired us to build multiple literacy theoretical frameworks. The eight dimensions of multiple intelligences (word smart, logic smart, nature smart, picture smart, body smart, music smart, people smart, self-smart) seem to match the components of multi-literacies, such as reading literacy, data literacy, digital literacy, information literacy, health literacy, civic literacy, and financial literacy.

2.2.3 Lack of Understanding of the Dimension of Deficiencies of Multi-literacy from Practitioners' Perspectives

Even though libraries recognize the need to promote multi-literacies to students, library schools often train generalists with an emphasis on reference services and information search, and they may lack the expertise to assess or teach emerging literacy skills, such as health and data literacies (Matambanadzo et al., 2018). In addition, literature indicates that mental health is critical to student success, and health literacy may play a role in student success. Still, students who are under emotional stress may not know why and how their studies are affected by these factors. Without appropriate health literacy training, students may not even know how to articulate their mental health status, seek assistance if necessary, and may fall into an "Anomaly Status of Knowledge" in this cognitive process (Belkin, 1980).

Libraries tend to rely on university officials, advising teams, and student service units to handle students' accounting and financial aid matters; however, financial burden is among the top reasons undergraduate students drop out of academic programs, but few such outreach programs have been reported in library programming. Hence, there could be earlier intervention to prevent financial crises from happening to students as a surprise.

2.2.4 Lack of a Clear and Focused Approach to Data and Media Literacy

Pinto et al. (2024) conducted a systematic review of articles relevant to the assessment of information, media, and data literacies. Results indicated that most researchers integrated existing information literacy conceptual frameworks for

assessment, such as the ACRL (2016) framework, rather than developing new frameworks or tools. Most studies focused on information literacy specifically, with only a few integrating related literacies (e.g., media literacy, digital literacy). Overall, the studies that assessed student learning demonstrated a positive effect of information literacy instruction or training. When delivered in collaboration with faculty, such learning activities yield better results and greater effectiveness. A clear relationship exists between critical thinking and the ability to analyze information. A gap, however, in the number of studies assessing media literacy training indicates a need to develop assessments for topics such as misinformation and evaluating authority and credibility, which are increasingly relevant in the information society. Pinto et al. (2024) further suggested a need to focus on developing media and digital literacy competencies and assessments to guide and evaluate the effectiveness of information literacy training activities. In addition to the gap in media and digital literacy, data literacy is emerging as an area of interest in the literature.

Data literacy is most often defined as “a component of information literacy that enables individuals to access, interpret, critically assess, manage, and ethically use data” (Prado & Marzal, 2013). Although an emerging topic, the literature indicates inconsistent adoption and application of data literacy competencies in academic libraries. Academic librarians are developing data literacy competencies, both general and disciplinary, to integrate into instruction with faculty collaborators. Although multiple sets of competencies exist, they share a foundation in the ACRL Framework for Higher Education (Association for College and Research Libraries, 2016), aligning threshold concepts to data literacy principles, knowledge, and skills (Condon & Pothier, 2022; Clemons et al., 2024; Xu, 2025).

With multiple sets of competencies emerging from the literature, there is a lack of agreement and shared vocabulary among academic librarians (Ghodoosi et al., 2023; Pothier & Condon, 2025). Clarity and focus on data literacy competencies aligned with the workforce data practices will assist in developing data literacy instruction and training for undergraduates.

The perceptions and experiences of workers indicate a need for further investigation of workplace data literacy practices to inform the development of data literacy instruction for undergraduate students and prepare them for today’s data-driven workforce (Burrell, 2022). Perceptions reveal that data literacy instruction that is relevant and aligned to job skills may increase undergraduates’ preparedness to enter the workplace (Pothier & Condon, 2025). In a survey of 164 logistics and manufacturing workers, 95% of respondents indicated they work with data in their current position, indicating a broad relevance of data literacy in the workplace (Pothier & Condon, 2025).

2.2.5 Literacy Education in Academic Libraries

Higher-paying jobs require upskilling in data literacy, but business and industry data indicate a gap in employee data literacy (Ghodoosi et al., 2023; Condon & Pothier, 2022). A systematic review of 71 papers revealed a gap in the literature regarding the application of data literacy to disciplines, indicating a need for interdisciplinary data literacy instruction. In addition to an interdisciplinary application, clear and focused competencies will support the data literacy needs for the post-graduate workforce (Pothier & Condon, 2025). More empirical research is needed across different industry sectors, job categories, and workplace settings to develop clearly articulated competencies for data literacy that will guide the creation and delivery of instruction and training for undergraduate students (Pothier & Condon, 2025).

Community colleges are critical pipelines for the workforce and higher education. Survey results of 570 community college students indicated that confidence in data literacy increased with age and experience, offering insight for academic librarians to develop data literacy instruction with practical application and scaffolding for age and experience (Evans et al., 2024).

Academic libraries are still investigating how to respond to the increasing demand for relevant and interdisciplinary training for students. As information literacy experts, librarians have experience with delivering instruction and training

situated in the information ecosystem. Current library practice includes examples of libraries offering data literacy training focusing on creating and reading charts and graphs rather than evaluating, interpreting, and applying data. By offering data literacy training programs, libraries can assist patrons in gaining workplace skills to make data-informed decisions needed in the modern economy, in addition to using data for themselves rather than relying on government and media data practices (Mann, 2026; Pothier & Condon, 2025). Libraries must seek stakeholder partnerships within the academic and local communities, including faculty, public libraries, and local organizations, to develop impactful data literacy instruction and training aligned with workplace needs and anchored in information literacy concepts (Mann, 2026).

2.2.6 Lack of Financial Literacy Education Practice for Students

Financial literacy has become a critical life skill for young adults, particularly college students who are navigating growing financial responsibilities. Effective personal financial management is increasingly important, as evidence of poor consumer decision-making in areas such as banking, credit use, and long-term borrowing highlights persistent gaps in financial education (Goyal & Kumar, 2021). The expanding range of financial products and services offers individuals greater autonomy in making financial choices, including saving and investing, while simultaneously increasing the level of responsibility required to manage financial risk (Stolper & Walter, 2017).

Broader changes, such as easier access to credit, the growing use of digital banking, longer life expectancy, and uncertainty about retirement, further highlight the need for financial education to help individuals make informed decisions about everyday spending, emergency savings, education expenses, housing, and retirement planning (Goyal & Satish, 2021). As a result, financial literacy is widely recognized as a core competency for the 21st century. Developing financial knowledge, skills, and confidence enables young people to participate in economic systems more safely and effectively (Rodríguez-Correa et al., 2025).

2.3 Previous Work

Libraries have a long history of promoting literacy. The IMLS (2022) Information Literacy Task Force published successful practices, tools, and programs related to financial, health, digital, and other information literacy subject areas on informationliteracy.gov, and illustrated the following five topics: AI Literacy, Digital Literacy, Financial Literacy, Health Literacy, and Science Literacy. The foundational work from IMLS provided a broader definition of information literacy that goes beyond traditional practice, emphasizing information search, use, and the cognitive process of information-seeking behavior. It reflects the societal needs for multiple literacy skills and can serve as a cornerstone in designing the research instruments for this study.

Based on the literature, the project team has identified levels of literacy that likely influence academic success at colleges and universities, including reading levels, math competency, civic discourse, financial literacy, and emotional and mental health, which will be the focus of this project. Based on this rationale, this project intends to develop a multi-literacies framework that extends the definition of information literacy to include additional components, particularly literacy skills in reading, data, digital, cultural, health, emotional, civic, and financial areas.

The project team has done preliminary work on information and data literacy. Jiebei Luo's current dissertation project explores the practical implications of college students' data-seeking behavior, and she has publications on data literacy. The PI has publications and presentations on data literacy competency with collaborators and student researchers. The IRB approval process for this project will be secured before the IMLS grant award is announced.

3. Project Work Plan

This project will use mixed methods to investigate undergraduate students' multi-literacy needs and academic library instructional services offered to support student success. The research locations include UNT Libraries, New York University Libraries in New York City (NYU), and one or more community college libraries to be determined. More locations and academic libraries will be selected for the study when needed. Appropriate IRB approvals will be secured for all surveys, interviews, and focus-group sessions before the IMLS grant award is announced.

Throughout the project, an advisory board will provide advice and guidance to the project team. Project personnel will meet with the advisory board on Zoom annually to receive feedback on the project's progress and development. The team will also send quarterly updates to the advisory board. Individual meetings and correspondence with advisory board members will also occur as needed throughout the project. The advisory board will include leaders, researchers, and experts on literacies, education, or library practice. Here are examples of the role of the advisory board and their qualifications:

Dr. John M. Budd is Professor Emeritus in the School of Information Science and Learning Technologies at the University of Missouri. He has held numerous leadership roles in professional associations, including President/Chair of ALISE, Beta Phi Mu, and ALA's Library Research Round Table, and has served on multiple ASIS&T committees. He is a former co-editor of JELIS. Budd's research encompasses theoretical, philosophical, and practical dimensions of information and library science, including the history and foundations of the field, information literacy, academic libraries, and the communication of information and information behavior. He has authored well over 100 journal articles in leading journals, such as *Library and Information Science Research*, *Journal of Information Science*, *Journal of Documentation*, and *JASIST*. His books include *The Changing Academic Library*, *Six Issues Facing Libraries Today: Critical Perspectives*, *Democracy, Economic, and the Public Good: Informational Failures and Potential*, and *Higher Education's Purpose*. He has delivered more than 125 presentations at professional conferences. He will provide support on information literacy and academic library research.

Dr. Marcia A. Mardis is Dr. Elfreda A. Chatman Professor of Information and Director of the Information Institute in the College of Communication & Information at Florida State University. She is also the Coordinator for Educational Informatics and Director of the Information Institute. She served as CCI's Associate Dean for Research from 2018 to 2024. Her research intersects learning resources, high-speed networking, community disaster resiliency, and workforce development with emphases in educational and community informatics, curation, STEM learning, and educational data mining. She has been PI, Co-PI, and/or senior personnel on many NSF and IMLS grants totaling over \$25 million and has led federally funded research projects continuously since 1999. She is the author, editor, and co-editor of multiple books and journals. She chaired and was the lead author of AASL's National School Library Standards. Dr. Mardis will support the multiple literacy studies with library professionals and help with project dissemination.

Dr. Kimi Lynn King is a Distinguished Teaching Professor of Political Science at the University of North Texas. Her interdisciplinary research interests include transitional justice, international humanitarian law and tribunals, human and civil rights, gender and sexual violence, and post-conflict reconciliation and restorative justice. She has published on topics such as the date of witness motivations, needs related to security, physical and psycho-social well-being, and perceptions of truth and justice, as evidenced by her co-authored books with Dr. James Meernik, *Judging Justice: How Victim Witnesses Evaluate International Courts*. University of Michigan Press. 2019; and *The Witness Experience*. Cambridge University Press. 2017. She is an award-winning study abroad program co-leader (with James Meernik), who has taken students to the International Criminal Tribunal for the Former Yugoslavia (ICTY) to conduct research for over a decade. She will provide support on the research design on civic literacies and help with the training of librarians on multiple literacy instructional designs.

Dr. James Meernick is a Regents Professor, Director of Castleberry Peace Institute, and Christian Family Peace Professor, Department of Political Science at the University of North Texas. His research areas include post conflict security, transitional justice, international criminal tribunals, and US foreign policy. He earned many awards, including the American Council on Education Fellowship, and the UNT Eminent Faculty Award, and has published more than 120 books, book chapters, and journal articles since 1993. He will provide support on research design on civic literacies and help with the publication and dissemination of the research results.

In addition to the researchers above, the PIs will invite professional librarians nationally to serve on the advisory committee.

3.1 Research Objective 1: Designing a Multi-Literacy Instrument for College Students (August 2026 to January 2027)

Task 1.1: Student Multi-literacy Needs Survey. The project team will conduct a survey of approximately 200 students to assess their multi-literacy needs, the challenges they face in achieving academic success, and their perceptions of library support. Participants will be recruited from academic libraries in various locations, including UNT, NYU, as well as additional locations to be determined.

Some of the background and demographic questions may be adapted from the current literature. The survey will be developed to answer the following questions:

- What are the students' perceptions of one of the multiple literacy needs (digital, analytical, civic, financial, health, multilingual, or multi-cultural skills)?
- What information channels do students primarily use to access literacy needs?
- Do students meet their literacy needs with the existing information literacy instruction offered by libraries?
- How do students perceive the role of academic libraries in the preparedness of literacy needs?
- What venues do students utilize in academic libraries to address their literacy needs? Face-to-face instruction, social media, or using friends and family?
- What expectations do students have regarding the role of academic libraries in preparing multiple literacy needs?

The survey will include open-ended questions and statements as self-reported items on a 5-point Likert scale. The items investigate student awareness of multiple literacies and the relationships between student access. The student survey includes demographic information and allows participants to provide their email and phone number for a follow-up focus group interview. A random sample of 20 students will be selected to participate in the next step.

Task 1.2: Student Focus Group on Multi-literacy Needs (January 2027 - May 2027).

This step is the triangulation process on instrument tool creation and validation process (Denzin, 2006). The survey data collected at Task 1 will be compared and triangulated in Task 1.2 to maximize the content validity of the multi-literacy needs survey. The questions for the focus group interview will derive from the survey data, which will cover the following factors:

- The areas of multiple literacies that are most important to students: digital, analytical, civic, financial, health, multi-lingual, or multi-cultural skills.
- Student motivations for attending or not attending library literacy instruction classes.
- Challenges students face in addressing their perceived deficiencies in literary needs.
- Factors that motivate students to seek library literacy instructional support to improve their chances of academic success.

Task 1.3: Multi-Literacy Survey Draft Creation (May 2027 - August 2027)

After synthesizing the student survey and focus group interviews on students' literacy needs, the research team will develop content-valid questions to estimate students' multi-literacy needs, paving the way for the creation of multi-literacy instruments to support library instruction. The literacy needs assessments will be the basis for creating a multi-literacy survey instrument.

3.2 Research Objective 2: User-centered Process to construct and validate the Multi-literacy Instrument (September 2027 – August 2028)

Based on the user needs study, a multi-literacy instrument will be created to estimate the multi-literacy needs of college students. Various validation studies, including student surveys and expert reviews, will be conducted to assess the instrument's content and statistical validity.

Task 2.1: Collect statistical validation data with students (September 2027 -January 2028). This draft multi-literacy instrument will include approximately 60 Likert-scale questions to assess the spectrum of multi-literacy skills. An additional 150 students will be recruited to test the reliability and validity of this version of this survey instrument. The goal of this step is to collect data for survey validation.

Task 2.2: Multi-literacy Instrument statistical validation (January 2028 – April 2028). Statistical validation of the multi-literacy instrument ensures that the survey accurately measures the intended construct (validity) and produces consistent, stable results (reliability). Internal consistency will be estimated using a reliability score calculated with Cronbach's alpha, with a target of above .70. Data from this step will be assessed using principal component analysis to improve the survey instrument and remove redundant question items (Creswell, 2005).

Task 2.3: Survey review and content validation with librarians and experts (April 2028 – August 2028). The content validity of an instrument can be determined using the viewpoints of the panel of experts. The content expert for this study includes librarians and advisory board members. They will ensure the multiple literacy instruments accurately measure the intended constructs of multi-literacies. Experts will rate items for relevance, clarity, and representativeness to the constructs related to multi-literacies on a 4-point ordinal scale (1 [not relevant], 2 [somewhat relevant], 3 [quite relevant], 4 [highly relevant]), a metric in the Content Validity Index (CVI) (Zamanzadeh et al., 2015).

3.3 Research Objective 3: Integrate Multi-literacies in Library Practice (September 2028 – August 2029)

Input from librarians on integrating multi-literacies into library instruction will be analyzed to identify needs, service gaps, and possible solutions to meet library instructional needs. The focus group method will be used in this step.

Task 3.1: Survey with Library Instructional Service Sessions (September 2028 – January 2029). A baseline survey with academic librarians will review the potential of using the Multi-Literacy Survey in library instruction. The PIs will recruit around 100 librarians from ACRL, ALA, and TLA and seek feedback on the following questions:

- What are the librarians' perceptions of the need to teach multi-literacy skills needs (digital, analytical, civic, financial, health, multi-lingual or multi-cultural skills)?
- What instructional formats are best used in multi-literacy instruction in academic libraries (one-time, multi-sessions, self-paced online)?
- What are the expected barriers to providing multi-literacy instruction to students?
- What is the role of academic libraries in preparing students' multi-literacy needs in the era of AI?
- What strategies can academic libraries use to best teach multi-literacy skills to enhance student success?
- In addition to digital, analytical, civic, financial, health, multi-lingual, and multi-cultural skills, what other literacies can prepare students for success?

The survey will be a combination of open-ended and Likert-scale questions. It includes demographic information and allows participants to provide their email and phone number for a follow-up focus group interview.

Task 3.2: Focus Group with Librarians (January 2029-May 2029). Fifty librarians from various libraries will be invited for focus group interviews. The participants will review the survey results from task 3.1 and provide suggestions on library literacy instructional design, multi-literacy assessment strategy, instructional session evaluations, and measurable impacts to enhance student academic success.

Task 3.3: Dissemination of Results (June 2029- August 2029). Recommendations for using the Multi-Literacy Instrument in library instruction will be disseminated at professional and research conferences by the PIs and doctoral students in years 2 and 3 to report on the process of multi-literacy survey building and its impact on library instruction.

3.5 Project Team and Resources

The project team includes the following key personnel:

- PI, Dr. Yunfei Du, is a Professor and Associate Dean of Academics in the College of Information at UNT. Dr. Du oversees college-level student retention, curriculum design and redesign, course scheduling, student scholarship, and career success. He has more than 20 years of experience in library education and has conducted funded projects in rural public libraries and in museum studies. He specializes in library workforce training and community outreach. His publications include research methods, information behavior, library education, data librarianship, and rural libraries. He is actively involved in two IMLS grants. Dr. Du will lead the efforts in data-driven methods and survey studies, including the design, validation, dissemination, and analysis of survey instruments.
- Jiebei Luo, Co-PI, is a Financial and Economic Data Analysis Librarian, New York University Libraries. She is currently a doctoral candidate in the School of Library and Information Science at Simmons College. Her role as a librarian supports the data analysis needs of financial and economic researchers through collection development, research coaching, and teaching. Her research interests focus on data literacy and evidence-based assessment in academic libraries. She has published in top journals such as *The Journal of Academic Librarianship*, *Library & Information Science Research*, and *Information Processing & Management*. She will lead the data collection, analysis, and survey creation and validation process and serve as a liaison with academic librarians for this project. She will also help with data dissemination and publication efforts.
- Daniella Smith, Co-PI, is a full professor, the Hazel Harvey Peace Endowed Professor, and the Director of the Information Science PhD program in UNT's Department of Information Science. She brings 24 years of librarianship experience. Her expertise spans school library certification, LIS curriculum development, STEM education for underrepresented populations, and experience in public library youth services, school libraries, and classroom teaching. As an ISTE Certified Educator, she leads projects utilizing her STEM research and technology skills. She also serves as a steering committee member of UNT's Learning Institute, which is a research unit focused on exploring the many dimensions of learning sciences, with the goal of using our findings to inform curricular and pedagogical practices. She co-authored "Curate: Shared Foundations" (ALA Editions) and led the School Librarians Facilitating the Success of English Learners national forum grant as the PI. She will lead the overall research design, survey validation, and dissemination of the results.
- Greg Hardin, Co-PI, is the Head of Teaching and Learning, University Libraries, University of North Texas. He previously served as the Information Literacy Coordinator at the University of North Texas Libraries. Mr. Hardin's research interests include information literacy, inquiry, instruction, user experience, and technology. He has presented at many professional conferences, including Computers in Libraries, the Cross Timbers Library Collaborative, the American Library Association Annual Conference, and the Texas Library Association Annual Conference. Mr. Hardin will lead the surveys and interviews of students and librarians and help with data collection and distribution of the research.
- Junhua Ding will be the project evaluator. Dr. Ding is the Reinburg Endowed Professor and Department Chair in Data Science at UNT. He also serves as the director of the graduate data science program. His research areas include data analytics, machine learning, software engineering, software security, and biomedical computing. He

has published more than 100 peer-reviewed publications on data science and software engineering. His research has been funded by NSF, NSA, other agencies, and industries. Dr. Ding will oversee the overall research process and submit an annual evaluation to the funding agency.

- Audrey Wilson-Youngblood will be a Research Assistant (RA). Audrey is the Director of the Southeast Campus Library, Tarrant County College in Arlington, TX. She is working toward her doctoral degree in information science at the University of North Texas. Her research area focuses on information literacy, data literacy, and AI in education. She will assist with creating the research instrument, distributing surveys to students and librarians, organizing interviews with students, and conducting surveys and focus group sessions with librarians.
- Another RA to be determined. This project will hire a second PhD student in DIS. This student will have strong analytical skills and computer app design experience, and will assist with recruitment of participants, implementation of interviews and focus groups, qualitative analysis of data, and project dissemination.

In addition to the expertise of the research team and UNT's computing resources, Dr. Daniella Smith, Co-PI, leads the Multiple Literacies Lab in the Department of Information Science at the University of North Texas (<https://ci.unt.edu/multipleliteracieslab/index.html>). The mission of this lab is to enable the acquisition of multiple skills through research and evidence-based practice. The lab plays an important role in engaging student researchers in current research on using multiple literacies in the academic library environment.

4. Project Results

The project will construct and validate a multi-literacy survey instrument based on a literature review, open-ended question survey, and focus groups with students. The instrument will be validated with experts and statistical analysis. The survey will be reviewed by librarians and experts on the potential of library instruction.

This research project will contribute to methodological innovation and practical applications. Conceptually, the project advances the understanding of literacies and promotes the use of multi-literacies in academic libraries. On the research front, the project will survey the needs of students and libraries, and generate and validate a multi-literacy survey instrument for students and academic libraries to use. Additionally, the project will lead to a better understanding of students' multi-literacy needs to advance their academic careers. This understanding will help academic libraries to identify service gaps and prepare more relevant literacy instructions. The research findings will be disseminated through publications, presentations, and organized workshops at conferences such as ALA, TLA, ACRL, ALISE, ASIS&T, AERA, and the iConference. Datasets, research products, and tools created will be shared under ethical rules, allowing researchers and libraries to conduct similar research (See the Digital Products Management plan).

The project will generate practical implications. The survey instrument will be developed and shared with libraries across the country to provide better library instructional services and enhance student success. Reports on student multi-literacies needs will be shared with academic libraries, allowing them to design more relevant and impactful instructional services. An online toolkit for academic libraries will be developed to provide guidance on the design and delivery of multi-literacy instruction and services.

For the project findings, the PIs will create a website at UNT and regularly post on social media and webinars to release current research outcomes and instructional service plans for librarians. This information will also be shared through roundtables, library organizations, and library Listservs. To sustain the research, when the funding period is over, the research team will refine the multi-literacy instrument and develop computer-based adaptive testing on both iOS and Android platforms for broader impact and easier access.

Schedule of Completion

The proposed project will begin September 1, 2026, and conclude August 31, 2029.

[illegible]

