HIGH SCHOOL TEACHERS' PERCEPTIONS OF STUDENT INFORMATION LITERACY
COMPETENCY SKILLS, LEVELS OF TEACHER LIBRARIAN COLLABORATION, AND
TEACHER EXPERIENCES OF COLLABORATION WITH SCHOOL LIBRARIANS IN THE
MOUNTAIN WEST: A MIXED METHODS STUDY

A Dissertation

Presented in Partial Fulfillment of the Requirements for the

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AUTHORIZATION TO SUBMIT

DISSERTATION

This dissertation of Lance McGrath, submitted for the degree of Doctor of Philosophy with a major in Educational Leadership and titled "High School Teachers' Perceptions of Student Information Literacy Competency Skills, Levels of Teacher Librarian Collaboration, and Teacher Experiences of Collaboration with School Librarians in the Mountain West: A Mixed Methods Study," has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies.

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I owe each one of these fine individuals a debt of gratitude, and, perhaps, some homemade cookies and coffee. My humble thanks and deepest appreciation to them all.

DEDICATION

This dissertation is dedicated to the school librarians and classroom teachers who work to make schools function, who collaborate with other educators, who strive to reach as many children as they can so they can learn and grow into their fullest potential, and who do this in a world that so often does not appreciate or value the critical work they do. I see you. I appreciate you. I hope my work provides a measurable benefit to you, your students, our nation, and the world. One very special educator deserves focused recognition. Marie, my wife for over 30 years, has been a constant support and sounding board, both before and during my doctoral program. She took care of tasks and responsibilities that we normally share so that I could read, write, and study. She is a truly amazing, intelligent, and caring person.

ABSTRACT

Information literacy is widely understood to be a critical component of the educational

experience of secondary school students and prepares them for success in school and in life.

Information literacy is the ability to acquire, manage, and evaluate information flows, with an

emphasis on determining what information is appropriate for a given information need, how

useful and credible that information is, and then using that information in an effective and ethical

manner. Various secondary education standards establish the need and requirement for high

school students to graduate with a set of functional information literacy skills, yet high school

graduates have a range of information literacy competencies that may be inadequate. This study

examined the perceptions high school classroom teachers have of the information literacy

competency levels possessed by their students and the interconnectedness of those perceptions

with the level of visibility of the school library and the level of collaboration those teachers have

with school librarians in five states in the Mountain West region of the United States using an

explanatory sequential design. This mixed methods study utilized an online survey to collect

quantitative data and in-depth interviews to gather qualitative data. The survey, which was

developed by merging and modifying two previously published instruments, used Likert-like and

open-response questions. Pilot testing confirmed validity and internal consistency. In all, 115

participants completed the first two sections of the survey and 27 participants completed the

entire survey, which consisted of three sections: demographics; teacher perceptions of student

information literacy skills; and teacher relationships with the school library and librarians. Five

participants, one from each of the five states included in the site, self-selected to participate in

follow-up interviews. The survey consisted of 68 items related to information literacy

perceptions and their relationships with the school library. Survey data showed that the

correlation between teacher information literacy perceptions and library relationships was

significant. Qualitative data collected from the follow-up interviews corroborated the survey data. Overall, the study findings revealed teacher perceptions of student information literacy (IL) skills competency that were average and support for collaboration between teachers and school librarians.

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Chapter I: Introduction

National information literacy (IL) standards in the United States have been established to ensure that high school students possess a minimal level of information literacy upon graduation from high school (American Association of School Librarians [AASL], 2018; Association of College & Research Libraries [ACRL], 2015; Common Core State Standards Initiative, 2009; Partnership for 21st Century Learning, 2019). According to the various standards, high school students should learn ethically-grounded information habits that encourage an information acquisition and management process that is iteratively developed from primary and secondary school (AASL, 2018; Common Core State Standards Initiative, 2009; Partnership for 21st Century Learning, 2019) through post-secondary and professional education (ACRL, 2015). The AASL (2018) established a set of learner standards that encompass the academic and life-long learning skills of inquiry, inclusion, collaboration, curation, exploration, and engagement. The educational standards set by the Common Core State Standards Initiative (2009), which were adopted by 41 states, the District of Columbia, and four territories, provide English Language Arts (ELA) standards for research and writing practices that are grounded in and support information literacy. The Partnership for 21st Century Learning (2019), a national organization composed of a coalition of business and educational groups, encourages the development of collaboration, creativity, critical thinking, and computer technology skills in schools. The ACRL (2015) revised its information literacy standards into a framework of six sections that focus on recognizing the authority, creation, value, inquiry, conversational, and explorative aspects of the information life cycle. Even with this expansive and overlapping set of information literacy standards to guide teacher practice and student learning outcomes, students leave high school

with insufficient information literacy skills (Cunningham & Williams, 2018; Jones-Jang et al., 2021; Kovalik et al., 2013; Saunders et al., 2017).

An adequate level of information literacy competency is essential for viable engagement in the 21st century from participation and success in higher education (Lanning & Mallek, 2017; Saunders et al., 2017; Stebbing et al., 2019). Information literacy skills are also crucial to participation in society and the workforce (Crawford & Irving, 2009; Head et al., 2013; Jones-Jang et al., 2021). Research into the IL competencies of high school students in the United States reveals that their skills in this fundamental educational outcome are underdeveloped when students lack instructional time with certified librarians (McPherson & Dubé, 2016; Varlejs & Stec, 2014). Research with first-year college students who received some level of instruction from certified librarians while in high school demonstrated increased confidence in their research skills and enhanced preparedness for college-level work (Valenza et al., 2022), even if there were some gaps in their IL skillset (Svensson et al., 2022). A recent study shows that teachers lack the ability to assess IL skills (Schiffl, 2020), which is a confounding factor in the development of IL skills in secondary school settings.

This lack of preparedness transfers to higher educational settings, with research into the information literacy of college students in the United States revealing inadequate competencies that affect their ability to perform well (Lanning & Mallek, 2017; Saunders et al., 2017; Stebbing et al., 2019; Svensson et al., 2022). According to the established standards, school librarians and classroom teachers, especially those teaching English Language Arts (ELA), are responsible for providing IL instruction to high school students (AASL, 2018; Common Core State Standards Initiative, 2009).

English language arts (ELA) teachers who follow the widely adopted Common Core State Standards (Common Core State Standards Initiative, 2009) provide information literacy instruction in alignment with standards on the research process and the presentation of information based on evidence. Since the Common Core State Standards do not explicitly identify standards for IL, adaptations are necessary to connect IL-related standards in the Common Core State Standards to IL standards through articulations known as crosswalks (Fuchs & Ball, 2021). School librarians are similarly tasked with providing instruction that builds the IL competency of students through their professional standards (AASL, 2018). Research has shown that IL instruction outcomes are most effective when classroom teachers and school librarians collaborate to teach IL skills (Kammer et al., 2021; Lance & Maniotes, 2020; Mohamad, 2017). However, research has also revealed that collaboration between classroom teachers and school librarians is not achieved for a variety of structural and practical reasons found in school settings (Crary, 2019; Eri & Pihl, 2017; Mertes, 2014).

This mixed methods study followed an explanatory sequential design as the basis for data collection. The explanatory sequential design method of data collection is a phased approach to data collection that first gathers quantitative data, after which qualitative data is collected to aid in understanding the results of the quantitative portion (Creswell & Guetterman, 2019). The research site for this study encompassed five states in the Intermountain West region of the United States, a large geographic area that, while their residents and landscapes might share some similarities, is far from monolithic. A survey provides a broad understanding of the views of participants who teach in the Intermountain West, but it is inadequate when it comes to empowering an understanding of the topics covered by the survey in a more nuanced and

sophisticated manner (Creswell & Guetterman, 2019). For this reason, an explanatory sequential research design was selected.

This explanatory sequential design study investigated five aspects of IL instruction that may provide additional understanding of the teaching of IL competencies in high schools and some of the related challenges, two facets of teacher perceptions of their school libraries and librarians, and five facets of collaboration between classroom teachers and school librarians. The five aspects of IL instruction at the center of the study were teacher familiarity with the concept of IL, the level of importance teachers assign to IL skills associated with high school research projects, the instruction teachers provide that is intended to teach IL skills, teacher confidence to provide IL skills instruction, and teacher perceptions of the IL competency level possessed by their students. The two facets of teacher perceptions of their school libraries and librarians included adequacy of the libraries and librarians for educational purposes and the value teachers placed on school libraries and librarians in the development of IL skills. The five facets of teacher librarian collaboration included the four facets identified by Montiel-Overall and Hernandez (2012) of coordination, cooperation, integrated instruction, and integrated curriculum, and the identification of any barriers that prevented classroom teachers from collaborating with their school librarians.

For the first step in the study, the researcher collected quantitative data by using a survey to collect demographic information about teachers and their schools, to assess high school teachers' perceptions of the IL competency possessed by their students, to gather information about teaching practices related to the IL instruction, and to obtain detailed information related to teacher perceptions of school libraries, and the level of collaboration between teachers and school librarians. Second, the researcher used the data to determine if there was a significant

difference in teacher-reported student IL competency based on teacher reported librarian credentials. Third, the researcher analyzed the data to investigate the existence and significance of the relationship between the teacher content area (for example, English Language Arts, Mathematics, Science, Social Studies), school classification, school size, and the teaching of IL skills. Fourth, the researcher investigated the data to determine the significance of any relationships that exist between teacher content area (for example, English Language Arts, Mathematics, Science, Social Studies), school classification, school size, and the level of collaboration reported between teachers and librarians. Finally, the researcher conducted interviews with five teachers, one from each state within the research site, to gain more nuanced information about the reported experience of teachers with school libraries and librarians.

The researcher collected data using an explanatory sequential design which first deployed an online survey to gather quantitative data. The survey concluded with an opportunity for participants to self-select for consideration in interviews for the qualitative portion of the study. The researcher used a modified version of a survey originally developed by Dubicki (2013) to measure teacher perceptions of student IL in a higher education context and the Teacher-Librarian Collaboration Survey developed by Montiel-Overall and Hernandez (2012) to investigate the function of school librarians in school settings. At the end of the survey respondents self-selected for possible participation in interviews. Ten respondents, two from each of the five states, were identified to take part in semi-structured interviews, all of which accepted. The interviews were conducted using Zoom. The interviews were recorded using integrated Zoom features. Otter.ai was used to generate transcripts for analysis which were further analyzed using Excel and manual thematic and descriptive coding.

Statement of the Problem

The literature establishes that the era of "fake news" is upon us (Molina et al., 2021; Tandoc, 2019; Tandoc & Kim, 2022; Tandoc et al., 2018, 2019, 2021). The effects of misinformation spreads from issues of public health (van der Linden, 2022) to education (Ferretti, 2022) and politics (Gaultney et al., 2022; T. Lee et al., 2022). Misinformation and disinformation are abundant and spread around the globe at a rapid pace, while weaponized information and technological innovations pressure us to constantly monitor and question the information we are exposed to in our crowded and expanding information environment (Jones-Jang et al., 2021). The ACRL (2015) defines *Information Literacy* as "the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is processed and valued, and the use of information in creating new knowledge and participating ethically in communities of learning." The literature also shows that IL is a critical 21st century competency (Behrens, 1994; Jones-Jang et al., 2021; Zurkowski, 1974). Educators in K-12 environments are involved in providing information literacy instruction to students (Al-Qallaf & Aljiran, 2021; Saunders et al., 2017), yet the systematic delivery of information literacy and adjacent instruction (digital citizenship, for example) is irregular across K-12 educational contexts, resulting in a lack of coordination and clearly defined instructional roles (McKeever et al., 2017; Phillips & Lee, 2019).

McKeever et al. (2017) found that the collaborative teaching of IL skills by librarians and classroom teachers is a recommended and preferred pedagogical practice, but it occurs less frequently than is desired by librarians and, outside of collaboration, librarians lack a key communication channel for understanding what IL instruction students are receiving (Phillips & Lee, 2019; Shannon et al., 2019). In addition, the literature also provides standards for the

teaching of information literacy concepts by K-12 educators, including those produced by the AASL (2018) and Common Core State Standards, which were released for adoption in 2009 (Common Core State Standards Initiative, 2009; Eubanks, 2014; Gewertz, 2015). The literature further states that high school students who go on to attend college are, as a population, in possession of IL competencies that are inadequate for the research rigors of college (Fisher et al., 2022; Lanning & Mallek, 2017; McGeough & Rudick, 2018; Saunders et al., 2017; Schaub et al., 2017).

The COVID-19 pandemic and the shift to virtual instructional delivery models adversely impacted student learning outcomes in general (Anderson et al., 2022; Turner, 2022) and the development of student IL skills (Heriyanto et al., 2021) in particular. The pandemic also exposed weaknesses in the digital literacy skills possessed by teachers (Huillca-Huillca et al., 2022; Sánchez-Cruzado et al., 2021), a form of literacy that is an essential skill used as part of contemporary instruction in IL. According to Bawden (2008), the core concepts of digital literacy are the ability to search the Internet, skill in navigating hypertext, competency in assembling knowledge, and adeptness at content evaluation. Given the importance of information literacy in the 21st century (Behrens, 1994; Jones-Jang et al., 2021) and the impact of the Internet and digital media on teenagers (Greenwood, 2021; Pew Research Center, 2021), the need for these literacies is critical (Koltay, 2011; M. A. Lewis, 2021). Fisher et al. (2022) found that middle and high school student academic achievement diminished during COVID-19 shifts in instructional delivery, possibly due to remote learning methods. The literature also reports on the perceptions of higher education faculty across disciplines regarding the information literacy competency of undergraduate students who are in their early college years, and the findings show that these faculty are concerned about the IL skills of their students, skills which should

have been learned in secondary school (Baird & Soares, 2020; Hossain, 2022; Stebbing et al., 2019; Svensson et al., 2022).

Purpose of the Study

The purpose of this mixed methods, descriptive, explanatory sequential, non-experimental study was to 1) investigate teacher perceptions of their students' IL skills competencies through the lenses of teacher content area, school classification, school size, and librarian credentials; 2) investigate the significance of any relationships between teacher reported levels of collaboration with a school librarian that exist between teacher content area, school classification, school size, and librarian credentials; and 3) investigate the reported experience of collaboration between high school teachers and school librarians from the teacher perspective through in-depth interviews.

The intent of this study is to help fill a possible gap in the research. The researcher sought to investigate the development of IL competencies in high school students in grades 11 and 12 in the northern-most inland states of the Mountain West region of the United States from the perspective of high school content teachers to answer three research questions. The first question seeks to understand teacher perceptions of their students' IL competencies. The second question is intended to understand the significance of any relationships that exist between teacher content area, school classification, school size, and the level of teacher and librarian collaboration. The third question, explored through in-depth interviews, seeks to investigate the reported experience of collaboration between high school teachers and school librarians from the teacher perspective.

The Mountain West region of the United States as defined by the United States Geological Survey (2016) includes all or portions of the states of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. This study focuses

on five similar non-coastal states located in the northern portion of the region: Idaho, Montana, Nevada, Utah, and Wyoming. The research from this study adds to the existing corpus of knowledge by investigating the perceptions of content area teachers regarding the IL competencies of their students and the intersections of IL instruction and perceived competency with the existence of a school librarian at the school site and the understanding teachers have about the purposes and functions of school libraries and librarians in the 21st century.

Background

Information literacy emerged from the field of information technology in the 1970s as a response to the rapid developments experienced in the information and telecommunications industry that began in earnest in the 1960s (Kelly, 2013; Zurkowski, 1974). This period in the mid-20th century brought disruptive and transformative change that challenged the information technology industry and led to calls from information technology professionals for increased literacy in the area of information, culminating in Zurkowski (1974) issuing a report that urged for a nationwide educational program that would teach people to become information literate (Behrens, 1994). The challenge was taken up in earnest by the United States government with the publication of *A nation at risk: The imperative for educational reform* (National Commission on Excellence in Education, 1983), the result of a study into the educational challenges facing the nation as it approached the end of the 20th century. In response, the library community created its own initiative, *Libraries and the learning society*, to address the challenges identified by *A nation at risk* and propose its own set of reforms (Office of Educational Research and Improvement, 1984).

The pace of information production and the ability to access it has grown exponentially since the 1980s with the advent of worldwide networked communications, and the resulting

technological advances have had a significant impact on the information literacy skills of high school students (Saunders et al., 2017), college students (McGeough & Rudick, 2018), and the general population in the United States (Jones-Jang et al., 2021). A report commissioned by the Pew Research Center and conducted by Anderson and Jiang (2018) discovered that 88% of teens had access to computers and that smartphones are available to 95% of teens. In that same survey, 89% of teens reported engaging in several online activities every day. A survey conducted by Vogels et al. (2022) for the Pew Research Center followed up on teen use of social media and technology. The survey found that students reported access to smartphones at a steady rate of 95%, consistent with the findings of Anderson and Jiang (2018). Access to desktop or laptop computers increased slightly to 90% from the 2018 study conducted by Anderson and Jiang. Vogels et al. (2022) found that 97% of teens reported using the Internet on a daily basis, a rate of Internet use that is significantly higher than teens reported (89%) in 2018 by Anderson and Jiang. Black and Hispanic teens were more likely (55% and 56%, respectively) than White teens (37%) to report being online nearly all the time (Vogels et al., 2022). Hispanic and lower-income teenagers in a study by Anderson et al. (2022) were more likely to share that they felt COVID-19 had adversely impacted their academic progress than White teens or higher-income teens.

The incredible growth in access to information at any time has led to the creation of new and revised information literacy education plans and frameworks from existing professional organizations such as the AASL (2018) and the ACRL (2015). Hollis (2018) identified 12 information literacy assessment tools that have been used over the years to measure information literacy competency. Eleven of the instruments identified by Hollis (2018) were intended for use in higher education settings and one, Kent State's Tool for Real-time Assessment of

Information Literacy Skills (TRAILS), was intended for use with K-12 students. The TRAILS

IL assessment instrument was discontinued in 2019 although archived resources are available

(Kent State University Libraries, 2019). Other assessments that are not prescribed for use in

assessing the effectiveness of library instruction, such as the Procedural Information problem-

solving Knowledge Evaluation-Education (PIKE-E) have been developed by other professionals

for use in specific contexts (Garcia et al., 2021). Other organizations have been created to bring

innovative approaches to the task of providing information literacy standards to guide the

development of curricula and associated learning outcomes (Common Core State Standards

Initiative, 2009; Partnership for 21st Century Learning, 2019). The focus of the assessments and

standards produced by these organizations is on the information literacy skills of the

participants, which is a task that is the primary concern of the educational systems that teach

and graduate them (AASL, 2018; ACRL, 2015; Common Core State Standards Initiative, 2009).

Libraries have an established history of recognized instructional practices within

educational contexts, including K-12 and higher education contexts (Krolak, 2006). Librarians

(the people) and libraries (the spaces wherein librarians work their craft) are valued

collaborators in the education of students for post-secondary education (Correll, 2019; Farmer

& Phamle, 2021) and in the provision of academic support in higher education settings (Baird &

Soares, 2020; Barry et al., 2021; Gaha et al., 2018). Librarians at libraries of all kinds provided

critical distance-learning support during the COVID-19 pandemic (Zhou, 2021). The

educational service and support provided by librarians and their contribution to the pedagogical

process are not always acknowledged (Mattern et al., 2014). This lack of recognition can lead to

librarians and libraries becoming an almost invisible part of the infrastructure in schools

(Centerwall & Nolin, 2019).

Research into libraries in K-12 education demonstrates the pivotal role that these spaces provide for students to access books, receive instruction, meet to study or play games, use computers, take tests, or visit for disciplinary reasons (Buchanan, 2012; Neuman, 2002; Scott & Plourde, 2007). School libraries are used by students and their families for various reasons depending on the need (Buchanan, 2012). Research into the relationships students have with school librarians shows that they are often viewed as accessory personnel that did not have the same status as their teachers and thought of libraries as separate from librarians (Burks, 1996; Rafste, 2003), even if they were liked (E. A. Lee & Klinger, 2021). The invisibility of librarians is documented in research into libraries and library services (Hertzell, 1997; Shaper & Streatfield, 2012), a situation that librarians share with school administrators and staff (Szekeres, 2004). The reason for this invisibility could be due in part to the lack of visibility of the school library as evidenced in part by the perceptions teachers have of librarians and the school library (Montiel-Overall, 2005) and the function of the library in the greater school context (Centerwall & Nolin, 2019).

This lack of visibility could also explain the lack of librarian involvement in the delivery of information literacy instruction and collaboration with classroom teachers, even as their expertise has been demonstrated to improve student information literacy competency outcomes (Correll, 2019; Farmer & Phamle, 2021; Fontichiaro & Johnston, 2020; Phillips & Lee, 2019). Most research on IL instruction in the United States has maintained a library focus, as evidenced by the entries in an annual comprehensive literature review of information literacy that has included "information literacy" in its search parameters since 1996 (Withorn et al., 2021). Current research that investigates IL from the perspective of classroom teachers is being

conducted in settings primarily in Europe (Centerwall & Nolin, 2019; Eri & Pihl, 2017; McKeever et al., 2017; Shannon et al., 2019).

The importance of collaboration in social services settings is well established, with a comprehensive literature review on collaboration between organizations published in the early 1990s (Mattessich & Monsey, 1992). The working definition developed by Mattessich and Monsey (1992) as part of their research includes an emphasis on mutual benefit grounded in a clearly articulated association in the pursuit of shared goals. All while preserving the autonomy, and agency of the partnering organization. Part of the Collaboration between teachers and school librarians presupposes a high level of visibility for the school library and the school librarians (Centerwall & Nolin, 2019; Montiel-Overall & Jones, 2011). The stages of teacher and librarian collaboration move from the low level of coordination of library activities (library visits, book talks, etc.), to cooperation with the school librarian to deliver instruction (helping teach a lesson, consulting, etc.), to integration of instruction and curriculum (lesson planning, assessment, etc.) (Montiel-Overall & Jones, 2011). Teacher and librarian collaboration has been a central professional pursuit for school librarians for many years (Berkowitz & Eisenberg, 1989; Montiel-Overall & Jones, 2011).

Theoretical Framework

The basis of this quantitative study into IL instruction and collaboration between teachers and librarians is constructivist learning theory, which has its foundations in the theoretical works of Dewey (1929), Bruner (1961), Vygotsky (1962), and Piaget (Piaget & Inhelder, 1969). Vygotsky's conception of social constructivism (Akpan et al., 2020; Vygotsky, 1962), wherein knowledge is created by the individual through interaction with others and the physical world, is central to the current study. Vygotsky (1978) theorized that an opportunity

for learning occurred at a stage called a zone of proximal development (ZPD). When a learner

reaches a ZPD, a stage where there is a gap between the learner's existing knowledge and

skillset, the learner is primed to increase their knowledge with help from a more knowledgeable

companion or teacher in a process Vygotsky called scaffolding (Vygotsky, 1978). Social

constructivism in an educational context can be visualized as a diagram with primary elements

of environment, engagement and interactions as depicted in Figure 1 (Social Constructivism,

2011). These primary elements overlap in areas of content, assessment, and instructional

strategies, which are all focused on the learner with the goal of promoting internalization

through scaffolding of learning at an identified ZPD (Aubrey & Riley, 2019; Social

Constructivism, 2011).

Figure 1

Diagram Explaining Social Constructivism in an Educational Context
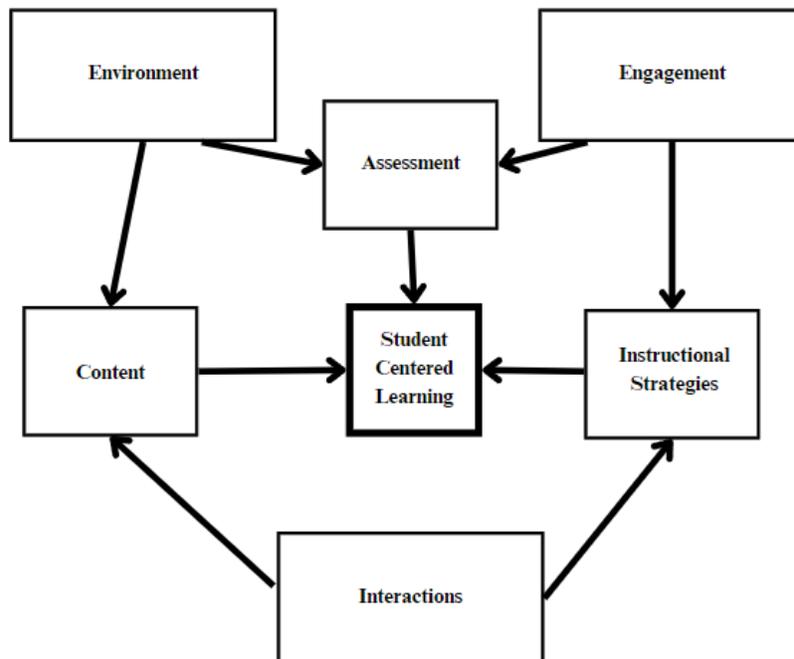
Note: Data from Social Constructivism (2011)

Different pedagogical traditions such as behaviorism (Doyle, 1992, 1994) and constructivism (Allen, 2008; Kuhlthau, 1988, 1990, 1993; Marcum, 2002; Swanson, 2006; Thompson & Cronje, 2001) informed IL theory and instruction over the years. The cognitive behaviorism tradition of IL is list-centered and provided a convenient set of attributes that can be assigned to learners (Doyle, 1992). The social constructivist tradition of IL is learner-centered and recognizes the value of personal experience and interaction with the known world and other individuals in the construction of knowledge (Allen, 2008). Kuhlthau (1988, 1990, 1993) grounded her work in IL within social constructivism. Kuhlthau's (1985) Information Search Process (ISP), shown in Figure 2, is a continuum that an information seeker moves through when conducting a search that involves six phases: initiation, selection, exploration, formulation, collection, and presentation. The ISP was formalized within a social constructivist framework (Kuhlthau, 1988, 1990, 1993).

Figure 2

Model of the Information Search Process (ISP)

	Initiation	Selection	Exploration	Formulation	Collection	Presentation
Feelings (Affective)	Uncertainty	Optimism	Confusion Frustration Doubt	Clarity	Sense of direction/ Confidence	Satisfaction or Disappointment
Thoughts (Cognitive)	Vague		→	Focused	→ Increased	interest →
Actions (Physical)	Seeking relevant information	Exploring →			Seeking pertinent information → Documenting	

Note: From Kuhlthau et al. (2008). CC BY NC ND

Collaboration between teachers and school librarians is a critical component in the delivery of IL instruction (Montiel-Overall, 2005, 2008, 2010). Students view their classroom teachers as the ones vested with authority to educate them (E. A. Lee & Klinger, 2021), so deep and meaningful collaboration between the classroom teacher and a school librarian has a positive impact on student learning outcomes, such as IL instruction, that involve school librarians (Lowe et al., 2020; Merga et al., 2021; Montiel-Overall, 2007). The model of teacher and librarian collaboration (TLC) developed and investigated by Montiel-Overall (2005, 2007, 2008, 2010) provides a means for understanding the value of the professional relationships between school librarians and teachers to student learning outcomes. Trust is a primary relational factor in successful collaboration between teachers and school librarians (Anggreini & Mutia, 2022; Rinio, 2018). Highly collaborative relationships between teachers and school librarians are a factor in positive student learning outcomes (Kammer et al., 2021; Lowe et al., 2020; Wersebe, 2018), especially IL (Merga et al., 2021; Mohamad, 2017). This study sought to investigate the levels of student IL, teacher and librarian collaboration, and the teaching of information literacy skills by classroom teachers from the perspective of classroom teachers.

Research Questions and Hypotheses

The researcher focused on questions that would genuinely and authentically investigate the perspectives of classroom teachers as it pertains to the information literacy competency of their students and the professional working relationships they have with school librarians. The following research questions guided this study:

RQ1: Is there a significant relationship between teacher perceptions of student information literacy competency skills and teacher content area, school classification, school size, and librarian credentials?

H01: There is no relationship between teacher perceptions of student information literacy skills and teacher content area, school classification, school size, and librarian credentials.

RQ2: Is there a significant relationship between teacher and librarian collaboration levels and teacher content area, school classification, school size, and librarian credentials?

H02: There is no relationship between teacher and librarian collaboration levels and teacher content area, school classification, school size, and librarian credentials.

RQ3: What is the reported experience of collaboration between high school teachers and school librarians from the teacher perspective?

There are nine dependent variables and four independent variables associated with this study. The first five dependent variables are related to teacher perception of student IL skills competency. The first dependent variable is Student IL Skills Competency: IDs and Addresses Information Need. The second dependent variable is Student IL Skills Competency: Accesses Information Effectively and Efficiently. The third dependent variable is Student IL Skills Competency: Evaluates and Thinks Critically About Information. The fourth dependent variable is Student IL Skills Competency: Uses Information Effectively for a Specific Purpose. The fifth dependent variable is Student IL Skills Competency: Uses Information Ethically and Legally. The second group of four dependent variables, six through nine, are related to the level of teacher and librarian collaboration, measured on four levels. The sixth dependent variable is Teacher Librarian Collaboration: Coordination. The seventh dependent variable is Teacher Librarian Collaboration: Cooperation. The eighth dependent variable is Teacher Librarian Collaboration: Integrated Instruction. The ninth dependent variable is Teacher Librarian Collaboration: Integrated Curriculum. The first independent variable is teacher content area (primary teaching discipline). The second independent variable is school classification (urban/rural designation).

The third independent variable is school size. The fourth independent variable is librarian credentials.

Description of Terms

An understanding of the terminology used in the study will be beneficial and provide the basis for a clear discussion of the topic (Creswell & Guetterman, 2019). The following terms represent current terms from the profession and the literature that are used in the study.

Academic library. A library in a higher education institution such as a college or university (American Library Association [ALA], 2022).

Collaboration. The process of educators working together as equal participants to help students succeed (U.S. Department of State, 2017), and, defined as "a trusting, working relationship between two or more equal participants involved in shared thinking, shared planning and shared creation of integrated instruction. Through a shared vision and shared objectives, student learning opportunities are created that integrate subject content and information literacy by co-planning, co-implementing, and co-evaluating students' progress throughout the instructional process in order to improve student learning in all areas of the curriculum" (Montiel-Overall, 2005) with clear levels further defined by Montiel-Overall and Hernandez (2012) as having four facets: 1) Coordination, 2) Cooperation, 3) Integrated Instruction, and 4) Integrated Curriculum.

Content area. The primary subject taught by an educator (Deshler et al., 2012).

Information literacy. This is the set of competencies that enable individuals to determine the need for information and how to find, assess, and utilize that information to meet an information need (ALA, 1989). More specifically, information literacy includes five skills expanded by Dubicki (2013) from the ALA's elaboration on the components of information literacy, which are: 1) Identifies and addresses information need, 2) Accesses information

effectively and efficiently, 3) Evaluates and thinks critically about information, 4) Uses information effectively for a specific purpose, 5) Uses information ethically and legally.

Infrastructure Theory. A theoretical model that attempts to explain the nature of systems that are often unnoticed, like cables and pipes, that are things in and of themselves, but also have a function relating to another thing, such as electricity or water (Larkin, 2013).

Intersubjectivity. The ability to engage and interact with other people in a manner that is grounded in reciprocity and meaningfulness (Buber, 1937).

Librarian. A person who is responsible for a library and for providing library services (*Collins English Dictionary*, n.d.).

Library. A professionally organized and maintained collection of resources (Eberhart, 2010).

Mountain West. A geographic area that covers a portion of the western United States that includes all or portions of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming (United States Geological Survey, 2016).

Pedagogy. The method and process of teaching, including assessment, classroom management, and lesson planning (Mishra & Koehler, 2006).

Perception. Awareness and interpretation of physical things, relationships, and occurrences by use of the senses (A. Lewis, 2001).

Rural. Any area that is located outside of an area that is classified as urban (Ratcliffe et al., 2016).

School library. A library located in and that provides library services in elementary or secondary schools (Britannica, n.d.).

Site. The contextual space in which the social aspects of life take place (Schatzki, 2002).

Urban. Any area that is densely developed, encompassing more than 2,000 residential units/5,000 persons (U.S. Census Bureau, 2022).

List of Acronyms

Acronyms offer common shorthand for professionals. They allow the efficient delivery of frequently used packets of information but can be obstructive to novices or casual observers. The following is a list of acronyms used throughout the document.

AASL – American Association of School Libraries

ACRL – Association of College and Research Libraries

AIL – Academic Integrity Literacy

ALA – American Library Association

ANOVA – Analysis of Variance

CRAAP - Currency, Relevance, Authority, Accuracy, and Purpose

ELA – English Language Arts

GPA – Grade Point Average

IL – Information Literacy

ISP – Information Search Process

SAT – Scholastic Aptitude Test

TLC – Teacher Librarian Collaboration

ZPD – Zone of Proximal Development

Significance of the Study

Centerwall and Nolin (2019) concluded that the library as place receives much more recognition than the professional librarians who run the library, exposing an issue for school administrators to address. They concluded their study by calling for more research into the position of school libraries and librarians within the larger context of school sites. Additional

researchers have investigated the delivery of information literacy instruction by classroom teachers instead of by or in collaboration with school librarians and determined that additional research into the complexities associated with the delivery of information literacy in K-12 schools is needed (Ben Amram et al., 2021; Crary, 2019; Cunningham & Williams, 2018; Eri & Pihl, 2017; Hossain, 2022; McKeever et al., 2017; Phillips & Lee, 2019; Shannon et al., 2019).

Additional significance is imparted to this study because of persistent calls for collaboration between school librarians and academic librarians (Barry et al., 2021; Correll, 2019; Farmer & Phamle, 2021; Saunders et al., 2017). The literature is also replete with suggestions to increase collaborations between school librarians and classroom teachers as a means of addressing the need for improvements in student information literacy competency (Crary, 2019; Montiel-Overall, 2005, 2008, 2009a; Montiel-Overall & Jones, 2011; Phillips & Lee, 2019; Shannon et al., 2019). Finally, international researchers have actively researched the complex relationships involving information literacy, classroom teachers, and school librarians on elementary and secondary school sites (Centerwall & Nolin, 2019; Eri & Pihl, 2017; McKeever et al., 2017; Shannon et al., 2019; Svensson et al., 2022). This is juxtaposed with recent research from the United States where research that is not library-centric is largely missing, with some exceptions, such as Mertes' (2014) study on the faculty at one institution of higher education in the Midwest region of the United States. Mertes (2014) researched the IL instructional practices of university faculty and gathered information on their perceptions of the IL skills possessed by their students. Also of note is Zane and Tucci's (2016) survey of high school chemistry teachers about the IL needs of their students. The results of the study showed that chemistry teachers in high schools perceived a need for professional development so they could provide IL instruction that was accurate and informed (Zane & Tucci, 2016).

Results from the current study include quantitative data that are directly related to the teacher perspective, which speak to the positionality of libraries and librarians in a school context, and that consider the relationships between the presence of school librarians and perceived student information literacy competency. The quantitative data are further enriched by the qualitative data obtained through in-depth interviews with ten teachers, two per state from each of the five states contained within the research site's boundaries of the Mountain West. School districts, school administrators, school librarians, and classroom teachers can use the results of this study to advocate for personnel allocations and to implement changes in information literacy instruction to improve student learning outcomes in this critical 21st century literacy.

Overview of Methods

Social science research may be conducted using a variety of methods, from purely quantitative, to expressly qualitative, or through a combining of methods from both approaches as befits the research questions and appropriateness for the conditions inherent in the research site (Creswell and Guetterman (2019). Hoy and Adams (2016) describe quantitative research as a form of investigation that uses scientifically-based systematic methods to quantify research data collected through empirical observation. According to Maxwell (2012), qualitative research provides a structured, yet adaptive, approach to data collection that allows for nuanced interpretation of data while preserving the centrality of the questions at the heart of the research design. Creswell and Guetterman (2019) discuss six common mixed methods designs, which combine elements of qualitative and quantitative research methods: convergent design, explanatory sequential design, exploratory sequential design, experimental design, social justice design, and multistage design. Given the physical size of the research site, which is over 520,000

square miles (U.S. Census Bureau, 2021), and the interest in providing an opportunity for teachers throughout the five states to participate in a reasonable period and with sensitivity to cost constraints, a mixed methods research design that incorporated a quantitative survey coupled with qualitative data collected from in-depth interviews was chosen. After reviewing the various research methods available, the researcher determined to use an explanatory sequential design. The explanatory sequential design, as described by Creswell and Guetterman (2019), is a research method that begins with quantitative data collection and analysis and proceeds in sequence to qualitative data collection and analysis with the interpretation of the qualitative data utilized to understand the quantitative results. The researcher followed principles of explanatory research by first engaging in a robust review of the literature on information literacy instruction in secondary schools and collaboration between teachers and librarians. The survey was developed after the researcher engaged with published research by Dubicki (2013) and Montiel-Overall and Hernandez (2012). The interview questions were crafted after consideration of the research questions and with the goal of obtaining information to enrich and more closely explore the broader landscape of the quantitative data generated from the survey responses (Creswell & Guetterman, 2019).

The current study utilized a dual-stage approach to data collection. In the first stage, the researchers used a survey with Likert-like scales to collect information on teacher perceptions of student information literacy, teacher content area, teacher information literacy instructional practice, perceptions teachers have of school libraries and librarians, and teacher collaboration practices with librarians. The survey was delivered online using the Qualtrics platform and involved the collection of anonymous surveys from 11th and 12th grade teachers from all content areas (for example, Career and Technical Education, ELA, Fine Arts, Mathematics, Performing

Arts, Science, Social Sciences) working at schools in the Mountain West states of Idaho,

Montana, Nevada, Utah, and Wyoming. All school types with a physical location were included:

private, public, charter, rural, and urban. The surveys were anonymous to protect the identity of

the participants and their students. The data were analyzed using MANOVA. In the second stage,

the researcher conducted in-depth interviews with survey respondents who self-selected for

participation in the interviews by indicating their choice at the conclusion of the survey. The

interviews were conducted using commercial video-conferencing software (Zoom) and the

transcriptions were produced using a commercial transcription application (Otter.ai). The

qualitative data obtained from the interviews was evaluated for completeness and accuracy,

coded for analysis, and processed into broader themes (Saldaña, 2021). Analysis of the

qualitative data was completed using Excel and manual coding.

The structure of the dissertation proceeds in the following manner and includes

descriptions of each chapter. Chapter 2 will provide a review of foundational and current

research on the theoretical frameworks of social constructivism and collaboration, information

literacy, libraries, librarians, teachers, the connections between these various elements in both the

K-12 and higher education contexts, and current measurements of information literacy

competencies.

Chapter 3 describes and explains the research methods utilized to collect and analyze

data. It explains the rationale for using a mixed methods explanatory sequential study design for

the collection and analysis of data, describes the process used to identify and select a research

population, explains the pilot process and the lessons learned from the pilot study, and the

procedures implemented for data collection and analysis. Chapter 4 reports on the findings of the

study and moves through the research questions in a sequential manner. Each question is

reported in order and is followed by each sub-question that is related to the main research question for that category. A summary concludes each section and includes a general overview of the analysis of the main research question, any sub-questions, and other pertinent or noteworthy observations. Major findings are summarized at the conclusion of the chapter. Chapter 5 provides interpretation and discussion of the study's findings in the context of each research question (as explained in Chapter 3), and the broader literature (as provided in Chapter 2). Chapter 5 also details conclusions drawn from the results of the study and discusses the transferability of the findings to other settings in the United States in general and the Mountain West region in particular. The chapter closes with some suggestions for future research and a discussion of the overall importance of the current study.

Chapter II: Review of the Literature

The following review of the literature provides a substantive and robust consideration of the relevant research literature on information literacy. The chapter begins with a discussion of the theoretical framework that provides the foundation for the study, Vygotsky's (1978) Zone of Proximal Development and Kuhlthau's (1991, 1993, 1996) Information Search Process, the Teacher Librarian Collaboration model developed by Montiel-Overall (2005), and ancillary theories that lend additional support to the study. The literature review then proceeds to an exploration of the literature on libraries in education, information literacy and librarians, and information literacy and teachers before moving on to a consideration of various measures of information literacy. Chapter 2 continues with a consideration of IL standards in educational settings and a look at IL as it pertains to learners in both K-12 and post-secondary settings before concluding with an introduction of the concept of collaboration in schools.

Information literacy (IL) is a critical skill (Atkinson & Thornton, 2021; Baird & Soares, 2020; Barry et al., 2021; Correll, 2019; Cunningham & Williams, 2018; Farmer & Phamle, 2021; Jones-Jang et al., 2021; Richards, 2021), the importance of which was broadly acknowledged by information professionals beginning in the 1970s (Zurkowski, 1974), decades before our present time with the Internet, smartphones, fake news, and near constant access to massive amounts of information (ALA, 1989; Zurkowski, 1974). The importance of information literacy has only increased since the original call for IL in the latter part of the 20th Century (Jones-Jang et al., 2021; T. D. Lee et al., 2020). A report by Anderson and Jiang (2018) for The PEW Research Center found that Internet-connected computers are available to 88% of teens and that smartphones are available to 95% of teens, with 89% of the teens in the same survey reporting several instances of online activity every day. In the United States, educational standards for

teaching IL skills exist at all levels, from K-12 through higher education (ACRL, 2015; Common Core State Standards Initiative, 2009; Partnership for 21st Century Learning, 2019). Even with the existence of K-12 IL standards, concerns exist about the IL skills competency of first-year college students (Lanning & Mallek, 2017; Saunders et al., 2017; Stebbing et al., 2019). Researchers regularly find that teachers are not comfortable with nor prepared to teach the concepts of IL (Ben Amram et al., 2021; Cunningham & Williams, 2018; Shannon et al., 2019), and that collaboration with school librarians, a process that prepares educators to teach these crucial 21st century skills, is basically nonexistent for a variety of reasons (McKeever et al., 2017; Rafste, 2003). This literature will review the concept of IL in education, the place of libraries in the educational sphere, the specific roles of librarians and teachers in the teaching of IL, and a discussion of the IL skills possessed by high school graduates. The purpose of this study is to fill identified gaps in the literature concerning the perceptions high school teachers have of the information literacy skills their students possess and the relationships those teachers have with school librarians and libraries.

Theoretical Framework

The purpose of a theoretical framework is to provide a structure that the researcher can use to explain the underlying and intersectional relationships between the concepts embedded in a research study (Ravitch & Riggan, 2012). In this way, the theoretical framework provides the basic means to connect the various elements of the research project into a coherent and cohesive whole. This study utilizes the theoretical frameworks of social constructivism (Aubrey & Riley, 2019; Vygotsky, 1978) to inform and support the interpretation of information literacy designed by the AASL (2018) and teacher and librarian collaboration as formalized by Montiel-Overall (2005). The researcher also acknowledges the influences of intersubjectivity as described by

Buber (1937), and infrastructure theory conceptualized by researchers such as Larkin (2013) and Bowker et al. (2010) and deployed by Centerwall and Nolin (2019) in their study of school libraries in Sweden and grounded in the work of Schatzki (2002), though these theoretical constructs are not employed in an overt capacity.

Social Constructivism

Social constructivism is an educational theory that is rooted in the research of Dewey (1929), Bruner (1961), Vygotsky (1962), and Piaget (Piaget & Inhelder, 1969). The foundational tenets of social constructivism, which was applied primarily to the understanding of learning processes experienced by children (Vygotsky, 1962, 1978), are the centrality of the child or learner, the importance of cultural context, zones of proximal development, and internalization (Aubrey & Riley, 2019). The zone of proximal development is a phase of learning where a learner has increased their knowledge or ability to a level that surpasses a previously identified learning goal and is cognitively prepared to advance to increased knowledge with adequate and appropriate support through a process known as scaffolding (Aubrey & Riley, 2019). Vygotsky's Zone of Proximal Development (ZPD) theory (1978) included a teacher, adult, peer, or other individual who possessed greater knowledge and who could act as a guide to help the learner reach the next level of understanding, internalize the learning objective, and construct new knowledge for themselves. The ZPD is visually depicted in Figure 3.

Figure 3

ZPD and Scaffolding
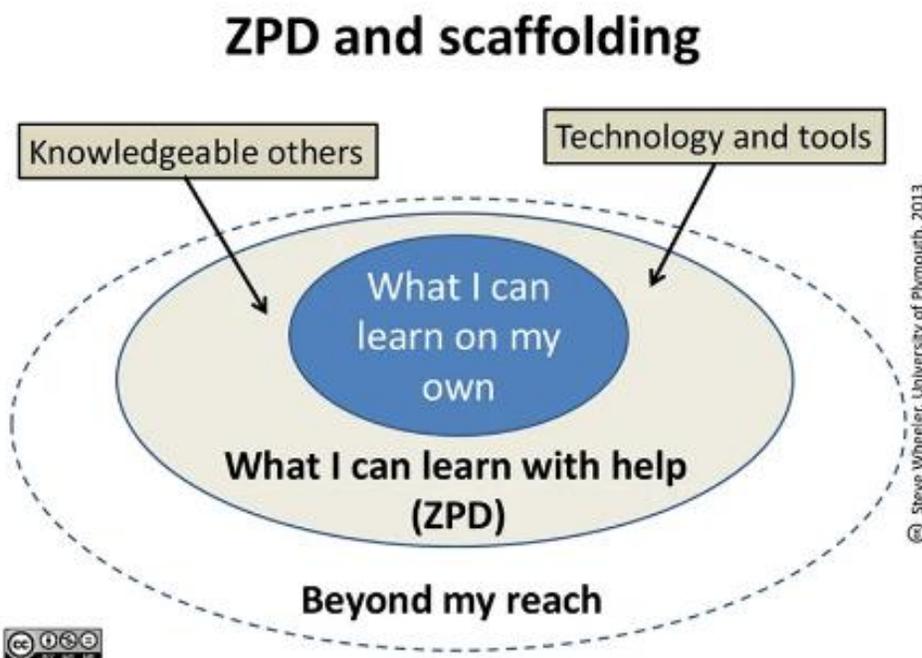
Note. From Wheeler (2015). CC BY NC ND

Information Literacy Theory

A variety of pedagogical methods including behaviorism (Doyle, 1992, 1994) and

constructivism (Allen, 2008; Kuhlthau, 1988, 1990, 1993; Marcum, 2002; Swanson, 2006;

Thompson & Cronje, 2001) have supported information literacy theory, instruction, and librarian

practice. The cognitive behaviorism tradition of IL developed by Doyle (1992) is regarded as a

reductionist process that leads to a checkbox or list type of IL that produced mechanical thinking

(Mertes, 2014). This form of IL instruction incorporates the often-used CRAAP (for Currency,

Relevance, Authority, Accuracy, and Purpose) Test developed by Blakeslee (2004) to help

provide a mnemonic device to help faculty in the first-year experience program at California

State University, Chico as they taught information literacy. Unfortunately, the CRAAP test does

not work well without modification (Elmwood, 2018; Liu, 2021; Tardiff, 2022). The CRAAP

Alterations to enhance functionality include additional steps to reinforce critical thinking and

metacognitive processes (Liu, 2021). Fortification of the pedagogical processes involved with IL

instruction is critical in an information environment that is rife with bad actors intent on

spreading misinformation (Gaultney et al., 2022; Hadlington et al., 2022; Hameleers, 2022) and

disinformation (Brisola & Doyle, 2019; Das & Ahmed, 2022; Hadlington et al., 2022).

In contrast to the behaviorist tradition of Doyle (1992), the social constructivist tradition

of IL focuses on the learner not as an individual with de facto IL deficiencies to be remedied

(Pashkova-Balkenhol et al., 2019), but a learner with an array of lived experience and

knowledge earned through engagement with the world and social interaction with other learners

(Allen, 2008). Kuhlthau situated her work in IL within social constructivism (1988, 1990,

1993). A hallmark of Kuhlthau's (1985) work, Information Search Process (ISP), is a

continuum through which a seeker of information progresses during the information search and

discovery process. The process, which is heavily dependent on the individual's information

need, includes six phases: Initiation, selection, exploration, formulation, collection, and

presentation. Kuhlthau (1988, 1990, 1993) formalized the ISP within a social constructivist

framework, operating with the understanding that the individual, even one skilled in navigating

the ISP, is ultimately in control of how knowledge construction is achieved. The Information

Search Process is depicted visually in Figure 4.

Figure 4

The Information Search Process (ISP)
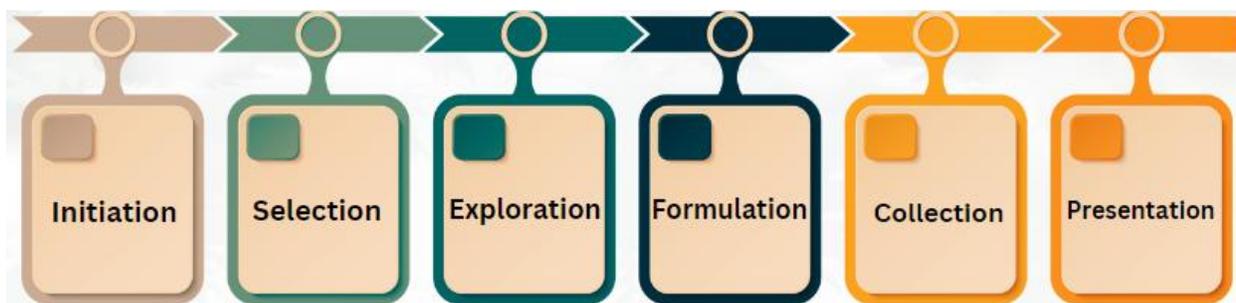
Note: Data from Kuhlthau (1991)

Information literacy theory as put into practice by the AASL *National School Library Standards* (2018) provides a support for information literacy standards that are shared by all educators in primary and secondary contexts. The AASL *Standards* (2018) integrates the information literacy standards for students, school librarians, and libraries to reinforce the connections between foundational elements of inquiry, inclusion, collaboration, curation, exploration, and engagement within a fourfold set of competency domains that encompass thinking, creating, sharing, and growing. The AASL *Standards* provides one means of exposure to the concepts of IL so participants in the study have a shared understanding of the concept of IL.

Teacher and Librarian Collaboration (TLC)

The theory of teacher and librarian collaboration proposed by Montiel-Overall (2005), further integrates the concepts of appreciation and respect for the Other that were advanced by Buber (1937) and Vygotsky (1978). The development of information literacy skills in students, can only fully be achieved when teachers and librarians are engaged in professional relationships that are grounded in mutual understanding, appreciation for each other's skills and functions, and recognition of the value of the other education professional (Montiel-Overall,

2005). Collaboration between teachers and school librarians is an essential activity in the provision of information literacy instruction to students (Montiel-Overall, 2005, 2008, 2010). The Teacher Librarian Collaboration model developed by Montiel-Overall (2005) and refined in Montiel-Overall and Jones (2011) is composed of four facets of ascending collaborative engagement between teacher and librarian: Coordination; Cooperation; Integrated Instruction; and Integrated Curriculum. The Teacher Librarian Collaboration model is depicted in Figure 5.

Figure 5

Teacher Librarian Collaboration Model
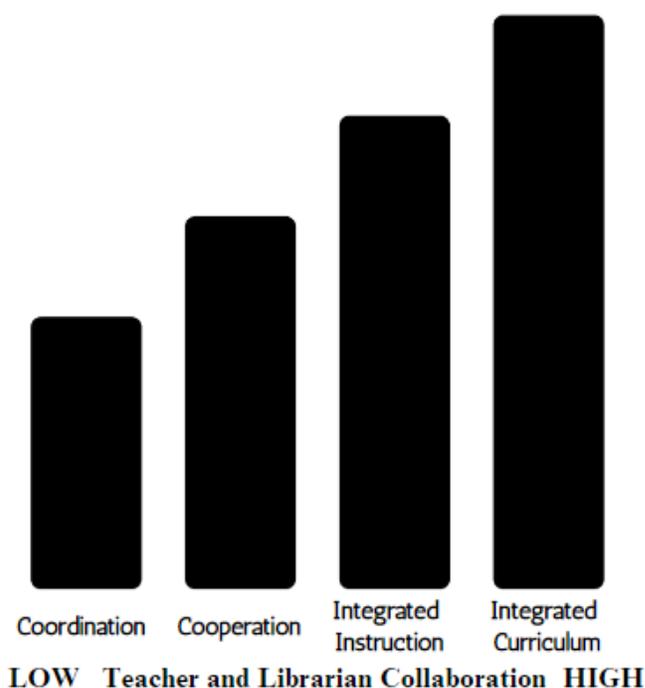
Note: Data from Montiel-Overall and Hernandez (2012)

Montiel-Overall (2010) and others (Kammer et al., 2021; Lowe et al., 2020; Merga et al., 2021; Soulen, 2021) found that collaboration only happens through active and intentional engagement between classroom teachers and school librarians. Purposeful collaboration between classroom teachers and school librarians can be helpful in bridging the student

perception of the librarian as the keeper of the books in the library and the librarian as an active and capable instructor of equal standing with classroom teachers (E. A. Lee & Klinger, 2021). Teacher and librarian collaboration can lead to a positive impact on student learning outcomes (Kammer et al., 2021; E. A. Lee & Klinger, 2021; Merga et al., 2021).

Gains in student academic performance are often associated with IL instruction that involves active participation from a school librarian (Lowe et al., 2020; Merga et al., 2021; Montiel-Overall, 2007). Teacher and librarian collaboration (TLC) as researched and conceptualized by Montiel-Overall (2005, 2007, 2008, 2010) provides a framework for comprehending the benefits of instructional design and specialized instruction that a school librarian can provide to a classroom teacher. Anggreini and Mutia (2022) and Rinio (2018) identify trust as a main relational factor present in functional and effective collaborative arrangements between school librarians and classroom teachers. Trust has been shown to be a significant factor in organizational health (Ozyilmaz et al., 2018), worker productivity (Parker et al., 2020), and job satisfaction (Siswanto, 2022). Dokubo (2022) found that teachers who engaged in coplanning and coteaching, two highly collaborative activities, demonstrated increased levels of trust and a desire to collaborate. Strong and active collaboration between teachers and school librarians is a positive factor in relation to student learning outcomes (Kammer et al., 2021; Lowe et al., 2020; Wersebe, 2018). Collaboration is especially effective in the provision of information literacy instruction (Merga et al., 2021; Mohamad, 2017). This study sought to investigate teacher perceptions of their students' IL skills, the degree of self-reported collaboration between teachers and school librarians, and the amount and type of collaboration frequencies by classroom teachers with school librarians from the perspective of classroom teachers.

Ancillary Theories

Two ancillary theories have had an influence on the researcher but are not explicitly used in the formation of the theoretical framework for this study. The first is the theory of intersubjectivity as detailed by Buber (1937) in the classic text *I and Thou*, which helps to provide a basis for human interactions grounded in mutual respect and understanding. Accordingly, authentic human interactions result in relationships wherein participants relate to one another as subjects as opposed to objects, thereby ensuring that all parties are seen and valued in and of themselves (Buber, 1937).

The second theory used to understand and explain the complex, essential, and often unseen elements that make things work and support the transfer of services, material items, and ideas, among other things is Infrastructure Theory (Larkin, 2013). According to Larkin (2013) "(i)nfrastructures are the material forms that allow for the possibility of exchange over space" (p. 327). Centerwall and Nolin (2019) envisioned school libraries as part of the greater context of school sites, drawing additional conceptual support for understanding the role of school libraries from Schatzki's (2002) idea of site that seeks to introduce an ontological understanding of social spaces and the constantly fluctuating interplay of practice and physical space.

Information Literacy

The concept of IL originated within the field of information technology as a response to the rapid pace of change in the information industry during the period spanning the 1960s and 1970s (Kelly, 2013; Zurkowski, 1974). This period of disruption and transformation encouraged those within the industry to declare the need for people to become information literate, with Zurkowski (1974) using the term in a report that called for a nationwide IL program (Behrens, 1994). Government and educational leaders recognized the challenges and opportunities

presented by the Information Age and issued a call for education reforms to develop and support a nation of lifelong learners that culminated in the publication of *A nation at risk: The imperative for educational reform* (National Commission on Excellence in Education, 1983). The library community launched an initiative, Libraries and the Learning Society, in response to the education reforms demanded in *A Nation at Risk*, which detailed the contributions libraries could make to address the identified challenges and proposed reforms (Office of Educational Research and Improvement, 1984). Access to information has increased since the first call for IL, with recent research providing significant contributions to the understanding of the information skills of high school students (Saunders et al., 2017), college students (McGeough & Rudick, 2018), and the general population (Jones-Jang et al., 2021).

Multiple groups have engaged with the need to educate students throughout the K-16 educational system by producing thoughtful and well-articulated plans and frameworks that provide educators and other stakeholders with a sense of the need for IL education, the development of curriculum, and the staging of instruction (AASL, 2018; ACRL, 2015; Partnership for 21st Century Learning, 2019). The aggressive abundance of information has encouraged researchers to investigate responses to the need for IL at the state level, where actions have been taken by state legislatures to guarantee the teaching of skills that will help to prepare students for participation in the 21st century (Media Literacy Now, 2023; Phillips & Lee, 2019). According to Media Literacy Now (2023), a public policy organization that lobbies for and tracks media literacy and digital citizenship legislation at the state level in the United States, Utah is the only state in the Mountain West to have introduced and passed media literacy, digital citizenship, or IL legislation. The Utah legislature enacted H.B. Bill 213, the Safe Technology Utilization and Digital Citizenship in Public Schools bill, in 2015 (Phillips & Lee, 2019). This

piece of legislation requires instruction in digital citizenship without additional or targeted funding for public schools (Phillips & Lee, 2019). Information literacy is defined by the ACRL 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" (2015). The definition forms the basis of key information competency skills, which Dubicki (2013) focused on in their research, and which are: 1) Identifies and addresses information need, 2) Accesses information effectively and efficiently, 3) Evaluates and thinks critically about information, 4) Uses information effectively for a specific purpose, 5) Uses information ethically and legally.

Libraries in Education

In order to understand the importance and complexities of the relationship between libraries and education it is critical to first consider the role libraries in the various educational levels. These levels are best understood in a United States context as school (kindergarten through 12th grade) and academic (higher education, including community colleges, colleges, and universities) libraries. This section provides foundational information about libraries in various educational contexts.

Libraries are a well-recognized and integrated element of educational infrastructure, with rich and deep connections throughout elementary, secondary, and higher education (Krolak, 2006). The people (librarians) and the spaces dedicated for the work of librarians (libraries) are valuable partners in preparing students for college (Correll, 2019; Farmer & Phamle, 2021) and providing ongoing educational support during their time at college (Baird & Soares, 2020; Barry et al., 2021; Gaha et al., 2018). The COVID-19 pandemic raised awareness of the critical distance learning supports provided by libraries of all kinds (Zhou, 2021). However, the

contribution of libraries to the educational preparedness of high school students is not always recognized (Mattern et al., 2014). Centerwall and Nolin (2019) provide some explanation of this invisibility of school libraries in their research into K-12 schools in Norway, which incorporated infrastructure theory as the lens for their study. Current work on the topic of interest for this study is largely being done outside of the United States, with most being conducted in Europe (Centerwall & Nolin, 2019; Schaub et al., 2017; Shannon et al., 2019; Stebbing et al., 2019; Svensson et al., 2022).

Libraries in K-12 Education

Libraries occupy a traditionally pivotal role in K-12 education, providing a location for students to access books, receive research instruction, study, meet to play games, gather for club activities, use computers, engage in standardized testing or other assessment activities, or go for disciplinary action (Buchanan, 2012; Neuman, 2002; Scott & Plourde, 2007). School libraries are used differently by students and their families depending on their needs, with some using the space more for studying and others as a convenient third place, some students seeking help with homework not related to the library, and others requesting assistance with research for class projects (Buchanan et al., 2016). Centerwall and Nolin (2019), in their investigation into the visibility of the library as a unit within the larger context of educational sites, found that the library as a location often received greater recognition than the librarians who ran them. The role of libraries in primary and secondary education is frequently understood differently by various stakeholders (Centerwall & Nolin, 2019; Cunningham & Williams, 2018) and these expectations for the role of libraries in education can lead to confusion and conflict (Eri & Pihl, 2017). McKeever et al. (2017), in an investigation into the perceptions of school library personnel on the collaborative and IL practices of the teachers with whom they worked, found varying levels

of collaboration, with the lowest form classified as *non-collaborative*. This relationship between library staff and classroom teachers existed in a transactional space (McKeever et al., 2017). In this situation, the teachers saw the library as a resource to take their classes to visit and viewed the librarians as the caretakers of the library space and the collection, but the classroom teachers did not include=the school librarians in lesson planning or co-teaching activities (McKeever et al., 2017).

A study by E. A. Lee and Klinger (2021) involving students in 3rd-8th grade revealed that the students generally liked their librarian, found them to be helpful, and that the librarian taught them IL skills. Research by Burks (1996) and Rafste (2003) into the use and value of school libraries to teenagers found that most students associated the school library with activities that occurred during class and that most of the value assigned to the school library was as a place for social activity. This could be due in part to the invisible role of the library in the larger context of the school, as discussed by Centerwall and Nolin (2019) in which they conducted a study of school libraries in Norway that investigated what makes a school library a crucial element in the wider school environment. The researchers applied infrastructure theory to understand the perceptions school employees held regarding the school library (Centerwall & Nolin, 2019). Infrastructure theory considers how people are unaware of components of contemporary existence, such as roadways, and buried utilities that they rely on and use every day (Centerwall & Nolin, 2019).

Schools are complex organizations consisting of nine infrastructure elements that support and interact with each other (administration, classroom instruction, custodial, food, guidance, health support, information technology, library, and management) and librarians occupy a complex and interconnected role within this structure (Centerwall & Nolin, 2019; Merga, 2020).

School libraries are not just places for students to study or check out books, but the location where skilled information professionals engage with educators and students in their craft (Centerwall & Nolin, 2019; Limberg & Alexandersson, 2003; Loh et al., 2021). Important as it is, much of the work done by school librarians is not highly recognized and is often not understood (Centerwall & Nolin, 2019; Eri & Pihl, 2017; Loh et al., 2021; McKeever et al., 2017). Centerwall and Nolin (2019) sought to investigate the public school as an expansive location with a wide range of educational praxes that comprise the infrastructure of school. Infrastructure is best understood as not just an objective component, but also as a relational component, which helps to explain the interconnectedness of both form and function within organizations (Centerwall & Nolin, 2019; Merga, 2020).

Centerwall and Nolin (2019) organized the results from the study into three categories representing institutional, professional, and physical structures. The researchers found that the libraries included in the study, all of which were award-winning, had staffing levels that were substantial, with several libraries having at least two professionally credentialed librarians. Participants reported generally positive management support for the mission of the library, though concerns regarding funding and administrator understanding of the work done in and through the library would benefit from improvements. Participants reported varying levels of role recognition and autonomy within their differing school contexts, with some reporting satisfying levels of autonomy and others indicating a sense of isolation from the classroom teachers, which was largely attributed to a lack of guidance from school management. Participant discussions of their professional structures revealed the importance of onsite and offsite networks, of collaborative projects with classroom teachers for building connections, and of being included in regular meetings, be they in-person or virtual. Participant responses relating to

the physical structures at the school site focused primarily on the library as place, especially the location of the library within the school, with several of the participants emphasizing the importance of locating the library in a visible and central location. Librarians noted that, in some schools, either through patchy network connectivity or network service design, the library provides the most reliable access to the Internet for students (Centerwall & Nolin, 2019).

Other researchers have noted the role of libraries in the K-12 student educational experience (Fontichiaro & Johnston, 2020; Lanning & Mallek, 2017; Phillips & Lee, 2019). Lanning and Mallek (2017) attempted an exploration of the liminal space between high school graduation and college matriculation, where most library instruction received by a first-year college student would have come from a non-college librarian or faculty, by analyzing the pre- and post-test scores of students in an introductory college class. The most significant indicator impacting pre-test score was found to be the student's combined SAT Reading and Verbal score. The researchers were unable to confirm a positive relationship between the presence of a school librarian and student scores on the assessments.

After the State of Utah passed legislation in 2015 requiring digital citizenship instruction in public schools, Phillips and Lee (2019) conducted research into the impact of the legislation on school librarians. They found that school librarians were well-represented as providers of instruction to support the goals of this unfunded mandate. In an attempt to bolster the digital literacy skills of K-12 librarians, Fontichiaro and Johnston (2020) developed a series of online conferences aimed at school librarians and educators. Post-instruction surveys provided promising results, but the mix of attendees had fewer members of the study's intended sample population (high school librarians and high school teachers) and the findings were disappointing. Participants indicated low levels of collaboration with high school librarians, a primary purpose

of the virtual conferences (Fontichiaro & Johnston, 2020). This lack of collaboration may have

resulted from the fact that many of the participants were not high school librarians or teachers,

the target population for the virtual conferences (Fontichiaro & Johnston, 2020).

Farmer and Phamle (2021) noted the positive impact of having just one librarian working

at least half-time at schools with a Title I designation had on the first semester GPAs of

graduates. Research by Hossain (2022) asked first-year college students to think back to the

instruction they received during high school about Academic Integrity Literacy (AIL), which

falls within the Ethical Use of Information portion of IL standards. Only a small number of

students reported the involvement of the library in providing AIL instruction, with most

attributing the lessons they learned to their classroom teachers. However, other researchers have

found that, whether students can recollect their impact, libraries are an integral part of K-12

schools and provide crucial support that benefits students (Farmer & Phamle, 2021; Phillips &

Lee, 2019).

Libraries in Higher Education

Libraries in higher education institutions similarly exist as academic units with a variety

of functions, from the cataloging and storing of print and archival materials, to engaging in

research assistance, holding library instruction events, developing and facilitating access to

electronic databases and other digital resources, providing classroom and study space, and

hosting special events, among other uses (Gabbay & Shoham, 2019; Nimon, 2001; Oakleaf,

2010). Faculty perceptions of the library and the specific role it occupies in higher education

contexts vary (Cooke et al., 2011; Gabbay & Shoham, 2019). Academic libraries provide a

function in IL instruction (Svensson et al., 2022). Libraries in higher education institutions also

provide support for institutional functions during periods of change (Deja et al., 2021), even if

the resources allocated to the library are not appreciated or fully utilized by students or faculty (Baird & Soares, 2020; Stebbing et al., 2019). College libraries are often viewed as the central hub of campus (Buschman & Leckie, 2007), as a central space for learning (Oliveira, 2018), and as an anchoring place for first-generation students (Neurohr, 2017).

Information Literacy and Librarians

This section delves into the literature about the teaching of information literacy by the educational professionals most frequently tasked with ensuring learners receive an acceptable level of information literacy skills: librarians. The librarians most often associated with information literacy instruction in a formal sense are school and academic librarians. First, the section provides introductory information about information literacy and librarians. Second, is a discussion of the relationship between information literacy and educators in K-12 environments. Finally, the section closes by providing details about the connection between librarians and information literacy in higher education contexts.

The role librarians play in the development of IL of students at all educational levels is a frequent topic of discussion in the literature about IL in K-12 settings (Farmer & Phamle, 2021; Fontichiaro & Johnston, 2020; Phillips & Lee, 2019). Correll (2019) explored the IL competency of first-year college students to see if the instruction they received in high school adequately prepared them for the rigors of college by surveying librarians at a college's feeder schools. The study found that first-year college students had a middling degree of general IL competency (2.85 on a 5-point scale) with main weaknesses in advanced search techniques and some strength in basic aspects of IL such as source documentation and plagiarism avoidance (Correll, 2019). The need for robust instruction in the use of the Internet throughout a student's K-12 education

and preparation for college and to participate in the 21st century economy has concerned multiple researchers (Correll, 2019; Phillips & Lee, 2019).

Librarians and Information Literacy in K-12 Education

Some research has shown that high school librarians play an important role in student success within the confines of their academic environment. Farmer and Phamle (2021) examined the relationship between the presence of high school libraries, the work of high school librarians, the socioeconomic status of students by virtue of the school's Title I status, and the success of first-year college students. Analysis revealed no statistically relevant connection between the type of school and having a librarian on staff (Farmer & Phamle, 2021). However, the study identified statistically relevant relationships between a librarian's presence and Title I status, and between at least a half-time librarian and the GPAs of first-year students (Farmer & Phamle, 2021). In sum, students from schools with full-time librarians had higher first semester college GPAs (Farmer & Phamle, 2021).

An exploration of the literature found a connection between school libraries and student academic success (Lance & Hofschire, 2012; Pasquini & Schultz-Jones, 2019), with the use of the high school library functioning as an indicator of library use in college, which is a predictor of successful academic progress in college (Farmer & Phamle, 2021). School librarians are important individuals in the teaching of IL in some cases because teachers do not feel adequately prepared to teach these critical skills (Hattani, 2019; Shannon et al., 2019; Williams & Wavell, 2006). Researchers found that classroom teachers were not comfortable providing extended library media instruction and benefited from partnering with school librarians trained in media literacy and associated instructional practices (Hattani, 2019; McNelly & Harvey, 2021). Other research revealed that teachers lacked pre-service training in information literacy instruction and

were uncomfortable teaching IL skills, even in instances where they acknowledged the importance of developing student IL competencies (Shannon et al., 2019; Williams & Wavell, 2006). These same teachers also did not receive training on collaboration with school librarians in their pre-service training (Shannon et al., 2019). Teachers cited lack of overall awareness about IL in teacher education programs (Asselin & Lee, 2002; McNelly & Harvey, 2021; Shannon et al., 2019), including the absence of the vocabulary required to facilitate informed discussions of IL (Stockham & Collins, 2012).

The State of Utah passed a law in 2015 that requires K-12 school districts and higher education institutions with colleges of education to educate their students about digital citizenship and the safe use of technology. The law passed in Utah provided no requirements regarding curriculum, nor about which personnel at a given school would be responsible for this instruction on digital citizenship and Internet hygiene (Phillips & Lee, 2019). Given that librarians are often tasked with providing instruction in IL, the core of digital literacy, Phillips and Lee (2019) wanted to know how much of this instructional charge had been assumed by librarians. When asked about who was responsible for providing digital citizenship instruction, the respondents stated that the top three categories were, in order, a combination of school librarians and teachers, technology specialists, and school librarians (Phillips & Lee, 2019). The remainder of the responses identified "individual teachers" and "other" as potential parties responsible for delivering digital citizenship instruction (Phillips & Lee, 2019). The outlier category of "other," an open response question that garnered responses from 25 teachers (12.5%), indicated a lack of awareness of which educational professional was tasked with providing instruction for this unfunded mandate from the Utah State Legislature (Phillips & Lee, 2019). This research that revealed the tenuous and amorphous nature of the responsibility of

teaching IL in schools is supported by other researchers such as McKeever et al. (2017) and Miller (2004) who found that teachers often lack awareness of the responsibilities of other educators in the teaching of IL.

Research has shown that an effective way of teaching IL is by integrating it across the curriculum through Guided Inquiry (Gregory, 2018; Kuhlthau et al., 2015; Lance & Maniotes, 2020) or other pedagogical practices that include librarians as vital educational partners in the IL instruction process (Crary, 2019; McKeever et al., 2017). The active presence of school librarians in classroom activities also helps build positive relationships with students, which can lead to improved outcomes for students (E. A. Lee & Klinger, 2021).

Advances in technology also present challenges to teachers burdened with the everyday tasks of teaching. School librarians often receive training in the use of technology for teaching (Elbasri, 2018) and have proven to be valuable resources for the teaching of technology-heavy topics such as IL, where teachers might not have received as much focused exposure in their preservice programs (Mohamad, 2017). School principals also recognize the unique position of school librarians in teaching information literacy skills and partnering with teachers in this endeavor (Church, 2008).

Librarians and Information Literacy in Higher Education

Librarians working in higher education environments also provide IL instruction to the students they serve, though the roles and responsibilities of academic librarians are generally more varied than they are for school librarians (McBurney & Kubas, 2019). Roles and duties for academic librarians include upper and middle administration, collection development, e-services, and instruction, with instruction librarians providing most of the teaching (Valenti & Lund, 2021). Academic librarians face challenges like those experienced by their school librarian

counterparts: barriers in reaching students (Richards, 2021; Yevelson-Shorsher & Bronstein, 2018), communicating IL concepts (Varlejs & Stec, 2014), and collaborating with colleagues (Lowe et al., 2020; Maybee et al., 2015).

Richards (2021) noted that librarians working in higher education use a variety of instructional methods to encourage students, many of whom possess an inflated view of their own library research skills, to use vetted subscription library resources that are not readily accessible on the open Internet. The technological comfortableness of college students, and the overconfidence one's technical abilities that often accompanies this familiarity with technology, often puts them at odds with the information professionals tasked with helping them develop an adequate level of IL competency and become proficient researchers (Graves et al., 2021; Gustavson & Nall, 2011). Other researchers have noted the variety of teaching techniques used by academic librarians from the use of humor (Alexander & Wood, 2019), to embedding librarians in classes (DaLomba et al., 2020; Harkness et al., 2021; Zanin-Yost, 2018). The practice of a librarian embedding in a course or across courses can lead to increased interaction with students (DaLomba et al., 2020; Harkness et al., 2021; Zanin-Yost, 2018) and improve student information literacy skills (Zanin-Yost, 2018).

Librarians working in both secondary school and academic library settings share similar concerns regarding the preparedness for students going from high school and entering their first year of college (Barry et al., 2021; Harkness et al., 2021; Richards, 2021). In recognition of this need, and to help support students during this period of transition, school librarians and academic librarians have implemented collaborative efforts in various settings (Barry et al., 2021; Harkness et al., 2021). Barry et al. (2021) sought to investigate this relationship between school and academic librarians as they endeavor to support students in this transitional space by

surveying academic librarians about the rationales they employ and obstacles they encounter in attempting to provide supports to students as they cross from high school into college.

Academic librarians and faculty frequently note the inadequate readiness first-year students seem to possess for the challenges of academic work despite the presence of IL standards that should result in the teaching of basic research, writing, and quantitative reasoning skills during high school (Barry et al., 2021; Correll, 2019). Saunders et al. (2017) sought to investigate the connection between the concerns of educators working in higher education and the actual instructional activities taking place in high schools to determine if there is alignment between expectations for college and high school IL education outcomes through surveys of both high school and college librarians. The research found significant disconnects between what the students are expected to learn in high school about IL and their actual IL competencies (Saunders et al., 2017).

Not all research has found significant deficits in the IL skills of first-year college students and has instead sought to frame the skills students bring with them to college as assets to be developed (Kocevar-Weidinger et al., 2019). Information literacy research typically approaches the research skills of first-year college students from a deficit perspective, placing primacy on what students need to know about doing library research and neglecting the knowledge and skills these same students already possess (Kocevar-Weidinger et al., 2019). The gaps in research skills evidenced by first-year college students might be better understood as voids between their existing IL capacities and the specific requirements of academic research in higher education settings, which are understandably new (Knecht, 2022; Kocevar-Weidinger et al., 2019). Students have developed strengths and competencies during their high school educational experience that should be leveraged to help students advance the growth of their IL skills

(Kocevar-Weidinger et al., 2019). For example, the practice of letting students select research topics of interest to them is in keeping with constructivist pedagogical models and should be encouraged (Knecht, 2022). The researchers found that first-year college students possess research habits and skills that might be transferrable to the research processes used in higher education. The researchers found that it is possible for librarians to create IL instruction that recognizes and leverages the research skills already possessed by first-year students by employing pedagogical methods informed by constructivist theory (Knecht, 2022; Kocevar-Weidinger et al., 2019). This investigation into the liminal space of the first year of college, which begins to provide a more nuanced and deeper understanding of students as they make the transition from high school to college, has support in other research (Gross & Latham, 2011; Head & Eisenberg, 2011).

Academic libraries encounter increasing calls to provide evidence of the value they provide to their institutions through the metric of student success (Bennedbaek et al., 2021; Croxton & Moore, 2020; Rowe et al., 2021; Scoulas & De Groote, 2019, 2022; Simms & Paschke-Wood, 2022). Some research (Soria et al., 2013) has shown a negative correlation between library instruction and student performance during the first year of college, while other research has demonstrated a positive relationship between library instruction and grade-point average (GPA) (Gaha et al., 2018). Research by Soria et al. (2014, 2017a, 2017b) showed a positive relationship between academic library use and student academic progress. Gaha et al. (2018) recommend a rigorous methodology that can account for the multiple variables that can influence student success and retention.

Information literacy skills are essential to success in college and in life outside of the classroom, especially in the context of an information society (Riehle & Hensley, 2017; A.

Taylor, 2012; Yevelson-Shorsher & Bronstein, 2018). The wide availability of information via the Internet and the constant flow of information from social media platforms have led to developments and refinements in conceptual frameworks used by information professionals in an effort to guide and direct the understanding of IL as it applies in contemporary contexts (Yevelson-Shorsher & Bronstein, 2018). A. Taylor's (2012) research on the search strategies of college students found that their processes were erratic but salvageable, a finding that is supported by the research of Yevelson-Shorsher and Bronstein (2018) and Riehle and Hensley (2017), who found that undergraduate student researchers were aware of the importance of scholarly communication but limited in their understanding of the complexities associated with the topic, which reduced their IL competency overall.

Research into the IL competencies of undergraduate students can provide intriguing revelations (Yevelson-Shorsher & Bronstein, 2018). The themes that emerged from the student interviews in Yevelson-Shorsher and Bronstein's (2018) study included student reports of frustrating search experiences: Trouble knowing how to initiate a search, frustration with time constraints, instructional practices that undermine the development of IL skills, and difficulty using the resources provided by the library. Yevelson-Shorsher and Bronstein (2018) reported results that the participating students acknowledged their responsibility for developing IL competency and knowing how to use the resources available to them was incumbent upon them. This finding came as a surprise to the researchers (Yevelson-Shorsher & Bronstein, 2018) as this finding was not supported by referenced literature. The students also reported that they were averse to using the library and consulting with the librarians because of emotional factors that are best described as a form of library anxiety, a phenomenon supported by researchers such as Blecher-Cohen (2019), Gardijan (2021), and McAfee (2018), whose work on library anxiety is

based on the concept of shame. Further analysis by Yevelson-Shorsher and Bronstein (2018) revealed a hierarchical power structure within the groups with faculty at the top, librarians in the middle, and students at the bottom. Other researchers have studied the concept of collaboration and the various factors that impact the successful implementation of collaborative relationships between librarians and teachers (Crary, 2019; McKeever et al., 2017; Mertes, 2014; Montiel-Overall, 2010). Yevelson-Shorsher and Bronstein's (2018) study found that the preferred method of library and IL instruction expressed by all of the represented groups involves a collaborative approach between teaching faculty and librarians, though how that collaboration actually materializes differed depending on the perspective of the specific group.

Academic institutions are not immune from the technological forces bearing upon other facets of society, creating disruption and a sense of precariousness impacting people around the world (Adam et al., 2020; González-Pérez & Ramírez-Montoya, 2022). Researchers initiated a study to answer two questions, with the first concerning how the associated factors influence a sense of readiness for change from analog to digital practices in an academic community, especially in the humanities and social sciences, and the second interrogating the attendant support provided by academic libraries to faculty during these transformational shifts from analog to digital (Deja et al., 2021). The researchers sought to investigate the resiliency of academic institutions as measured by their readiness for digital transformation and the position of libraries to mediate this shift in communication and information distribution. More so, the purpose of the study was to analyze the notions of IL and digital literacy within a framework that placed academic librarianship at its center and viewed academic libraries as agency supporting change facilitators during shifts in the information systems used by the institutions in which they operate (Deja et al., 2021).

The results of the study largely confirmed the aforementioned theoretical model envisioned by the researchers, with six of the seven hypotheses supported. The hypothesis that explored an explicit connection between information management and information use was not confirmed. Deja et al. (2021) found strong support for both IL and information empowerment to explain variations in information culture. Other research confirms the connection between IL and information empowerment (Adam et al., 2020; González-Pérez & Ramírez-Montoya, 2022). Research provides additional confirmation for previously documented research regarding information culture, notably that the aspect of culture associated with information behaviors that are collective in nature, are a crucial component in cultivating an academic institution's academic personnel and their intellectual development (Deja et al., 2021). The results of the research support the importance of both IL and digital literacy in the formation of a higher education institution that can approach digital transformation nimbly (Adam et al., 2020; Deja et al., 2021; González-Pérez & Ramírez-Montoya, 2022). Deja et al. (2021) is especially noteworthy to librarians working in higher education as they work to develop plans to support their colleagues with professional development opportunities aimed at increasing their ability to succeed in digital environments. One final finding from the study is the confidence that academic personnel place in their IL versus their digital literacy, with IL self-assessments ranking substantially higher than digital literacy (Deja et al., 2021).

Atkinson and Thornton (2021) investigated the study of political science, a complex subject area rendered even more complicated because of the rapid rise in the amount of information to process. The study of political science requires robust IL skills from students for them to be competent in this field of study and to experience success in their coursework (Atkinson & Thornton, 2021). The researchers noted that the needs of first-year students are of

particular importance because of relatively undeveloped IL skills and an inflated sense of their competency in those same skills, an observation that is supported by research conducted by Baird and Soares (2020), Saunders et al. (2017), and W. L. Smith and Zhang (2009). Atkinson and Thornton (2021), neither of whom are librarians, sought to gather information regarding the information habits of first-year students at a single higher education institution through an analysis of citations from writing assignments submitted by students as part of their coursework, a research technique known as citation analysis. The study confirmed that students who use quality resources in their coursework, a goal of IL instruction, tend to achieve better academic outcomes (Atkinson & Thornton, 2021).

Information Literacy & Teachers

Teachers occupy a pivotal role in the delivery of IL content and instruction to students because of their roles within educational institutions (McKeever et al., 2017; Shannon et al., 2019). Yet, in spite of this important position held by teachers, preservice teachers receive little IL education and have limited knowledge of IL concepts and skills (Stockham & Collins, 2012). The absence of a common understanding of IL only makes matters more confusing for all stakeholders (Cunningham & Williams, 2018). Eri and Pihl (2017) identified contradictions that complicated teacher and librarian collaboration, such as disconnects between IL instructional practices and the function of professional partnerships. Crary (2019) confirmed the presence of similar contradictions when she researched the willingness of teachers to change their IL instructional practices and found inconsistencies in the responses that would make it challenging to expand teacher and librarian collaboration, even though teachers acknowledged the benefits of doing so.

Research by Shannon et al. (2019) provided crucial information about the IL instruction required of preservice teachers and related perceptions about their comfort teaching IL, while research by Al-Qallaf and Aljiran (2021) queried the IL skills of high school students and how they are being taught those skills. Both studies found heightened levels of confidence in IL abilities from their respective research populations (teachers for Crary and students for Al-Qallaf & Aljiran) and needs to increase IL competency. Yet research into teacher readiness to provide the detailed and integrated IL instruction needed to effectively prepare K-12 students for life after graduation has been shown to be lacking as demonstrated by research conducted by Cunningham and Williams (2018), Shannon et al. (2019), and Ben Amram et al. (2021).

Information Literacy in K-12 Education and Teachers

Stockham and Collins (2012) surveyed preservice teachers about their IL knowledge and intentions about teaching IL once they entered full-time teaching. The researchers (Stockham & Collins, 2012) also asked school library media specialists (SLMS) about their perceptions of the IL knowledge and teaching practices of the teachers with whom they worked. The researchers found that while pre-service teachers demonstrated some understanding of IL concepts and reported support for the teaching of IL content to students, their IL skills could be improved upon. Further, the SLMS respondents indicated that the teachers with whom they worked generally demonstrated weak IL skills, worked with the SLMS infrequently, and taught IL concepts to their students in an unsystematic way (Stockham & Collins, 2012). These general findings are supported by researchers such as McKeever et al. (2017), who explain that the need for IL skills development in students to prepare them to be productive members of society, manage their learning throughout their lifetimes, and act as informed citizens in the digital realm is long-acknowledged need, yet little attention has been paid to the IL skill levels of teachers and

the nature of their collaboration with school librarians. McKeever et al. (2017) continued the work from a prior study into IL that revealed deficits in the IL skills and teaching practices of teachers by surveying teachers, interviewing faculty in teacher education programs and school librarians about the IL competencies possessed by teachers (McKeever, 2013). Published research about teacher IL skills and teaching practices has produced mixed results with some finding that teachers are not adequately prepared to teach IL (Crary, 2019; Cunningham & Williams, 2018; Eri & Pihl, 2017; J. K. Smith, 2013) and others finding that factors such as teacher self-efficacy can be effective proxies for preservice preparation to teach IL, at least as a starting point (Shonfeld et al., 2021). McKeever et al. (2017) note that teachers may teach IL skills to their students, but the skills are taught inconsistently and not very effectively.

According to Cunningham and Williams (2018), the literature concerning information literacy over the past two decades has included recurring themes of the absence of a common understanding of information literacy that is distributed across multiple interested parties and the contextualization of information literacy teaching and researching. The development of a single definition of information has proven to be elusive and may be counterproductive to arriving at a more nuanced understanding of information literacy as a concept that is shared across a wide range of contexts. The researchers engaged in the study to investigate how a variety of stakeholders at an international school comprehended the concept of information literacy and what definitions they used when discussing information literacy. Their study involved discussions with various types of school employees (teachers, librarians, administration, and IT staff), parents, and students (Cunningham & Williams, 2018). The research revealed that the adult study participants thought that all teachers provided IL instruction, a role not firmly embraced by the teachers, which is indicative of confusion surrounding IL instruction observed

by other researchers (Ben Amram et al., 2021; McKeever et al., 2017; Shannon et al., 2019).

Cunningham and Williams (2018) suggested that school leaders provide the supports needed to

create and sustain learning communities that empower effective IL instruction, a theme echoed

by other researchers (Ben Amram et al., 2021; Centerwall & Nolin, 2019; Crary, 2019).

Some researchers (Crary, 2019; Eri & Pihl, 2017) have investigated teacher and librarian

collaboration, a practice that could help increase teacher competencies and leverage the expertise

of librarians to benefit students. Eri and Pihl (2017) investigated the contradictions within

educational systems that guide the delivery of literacy education in Norway and how these

systemic challenges impact the collaboration between school librarians and teachers. They noted

that collaborative relationships between teachers and school librarians have been shown to

benefit the literacy rates and reading activities of students (Eri & Pihl, 2017). Concurrently, Eri

and Pihl (2017) noted that the rate of collaboration between teachers and school librarians in

Norway has remained low, even as the two types of educators share a common charge to support

literacy education. Their research revealed discursive themes and contradictions that required

participant willingness and creativity to address. Crary (2019) conducted a study to investigate

teacher openness to changing IL instruction through the lens of Change Theory as described by

Michael Fullan and perspectives of a group of teachers and school librarians regarding who

should teach IL. The study focused on three research questions about IL instruction in K-12

schools in the areas of: 1) Variances in teacher perceptions of the role of school librarians in IL

instruction; 2) the level of change readiness regarding IL instruction possessed by teachers; and

3) the responses of school librarians to the understandings of IL instruction delivery held by

classroom teachers. The researcher noted that K-12 students lack the fundamental IL skills

required to successfully confront the analytical challenges presented by our information-rich

world and require proper instruction to gain these skills, so they are prepared to enter career or

college pathways upon graduation. Teachers and school librarians can and should work together

to provide this vital instruction to the students both groups are tasked with educating, but there is

often confusion as to roles and responsibilities regarding IL instruction (Crary, 2019; Kammer et

al., 2021; McKeever et al., 2017; Montiel-Overall, 2005, 2008, 2009a; Rinio, 2018; Stewart &

Deans, 2020; Sturge, 2019).

Crary (2019) found that, regarding the role of the school librarians in the instruction of IL

skills, teacher support was overwhelming, with over 90 percent supporting this idea. However,

variances in teacher responses emerged regarding access to and use of standardized test data,

with most (over 90% in both cases) favoring teacher access, but a significantly smaller number

(around 56% agreeing that librarians should have a similar level of access and use of

standardized test data. In the study, teachers indicated a high level of support for librarians in the

teaching of IL skills to students in all areas, except for the organization of research materials and

for the provision of professional development about IL for staff. This is similar to the research

findings of Montiel-Overall (2008, 2009a), Montiel-Overall and Jones (2011), and Montiel-

Overall and Hernandez (2012) whose work delved deep into librarian-teacher collaboration as

part of a pursuit to develop a comprehensive instrument for measuring this interaction between

librarians and teachers in their Teacher-Librarian Collaboration III test.

The research by Crary (2019) also found that teachers responded that they had a high

level of support for their own responsibilities to teach all aspects of IL to students, but, when it

came to professional development for staff, they indicated levels of support that were not quite as

robust as their support for their own teaching. Teachers were generally open to change in the

collaborative teaching of IL skills, except in the assessment of student work completed as part of

integrated IL instruction. The most formidable barrier to collaboration with librarians reported by teachers was a lack of time (Crary, 2019; Kammer et al., 2021; Stewart & Deans, 2020), indicating the desire to collaborate with librarians in providing IL instruction is there, if only time constraints can be addressed (Copeland & Jacobs, 2017; Crary, 2019; Kammer et al., 2021; McKeever et al., 2017; Montiel-Overall, 2005, 2007, 2008, 2009a). Librarian reactions to the teacher perceptions indicated a general level of agreement on some topics, and confusion and umbrage to teacher responses on others. Librarians agreed with the position of teachers regarding the teaching of IL skills to students, recognizing it as their domain of expertise, but disappointed in the reservations teachers had in sharing standardized test data with librarians (Crary, 2019). Overall, the librarians provided responses to the teacher survey data that were positive when teacher responses favored librarians and expressed concern when the teacher responses were unfavorable to librarians (Crary, 2019). This research is important for teachers, school librarians, and administrators as all parties will need to be involved to address the critical issue of time and planning that are required for successful collaboration, which is a recommended practice in the delivery of IL instruction. In conclusion, Crary (2019) suggested that a deeper understanding of the relationship between school librarians and teachers, especially from underrepresented voices in the delivery of IL instruction, would be a valuable contribution to K-12 educators. Support for diversity, equity, and inclusion in research into IL instruction is a problem raised by other researchers (Eri & Pihl, 2017; McKeever et al., 2017; Montiel-Overall, 2008; Stewart & Deans, 2020).

Shannon et al. (2019) examined the IL skills and cognizance of secondary (middle and high) school educators and sought to further explore previous research that found teachers lacked IL competency, a critical component required for students to acquire strong IL skills. Shannon et

al. (2019) situated their work within the theoretical frameworks of Mellon's Library Anxiety theory, Kuhlthau's Uncertainty Principle, and self-efficacy theory to guide their study and help understand the impact of anxiety and uncertainty on the IL competency of teachers. The survey revealed that an astonishing 99% of survey responses indicated that the respondents had not received IL instruction as part of their preservice teacher program, although additional questioning resulted in discovering that a small percentage of teachers had received IL instruction under other names. Other researchers have discovered similar situations with underprepared preservice teachers (Al-Qallaf & Aljiran, 2021; Baird & Soares, 2020; Bury, 2011; Dubicki, 2013; Shonfeld et al., 2021; Stebbing et al., 2019). Shonfeld et al. (2021) found that teachers received inadequate IL instruction in their preservice courses. Common reasons for a lack of IL knowledge included time constraints, funding issues, and because the teaching of IL was not a requirement and, therefore, not a high priority. The study also provided a glimpse into the IL competency of the participants by implementing a short IL competency assessment of four questions. Teacher performance on the IL assessment showed that their IL skills were weak. The measured IL competence was imbalanced with the high confidence expressed in the self-assessment of their IL skills. The researchers concluded that this meant the teachers were being asked to teach a concept that they were not adequately prepared to teach (Shonfeld et al., 2021).

A study by Al-Qallaf and Aljiran (2021) explored the IL skills possessed by high school students and the associated pedagogical practices of their teachers at three private schools in Kuwait. The omnipresence of information facilitated by digital distribution channels underscores the critical importance of IL as an essential component of the high school curriculum. Information literacy standards have been established by various organizations to address the need for IL competencies (Al-Qallaf & Aljiran, 2021). Younger users of the Internet, the so-called

digital natives, should be equipped to be competent and critical consumers of information (Al-Qallaf & Aljiran, 2021; Brisola & Doyle, 2019; DeCarlo et al., 2021; Simmons & Saunders, 2021). Teacher interviews revealed four main themes: the importance of IL standards; the need for a strong appreciation for the ethical use of information; the value of students learning key IL skills; and the use of preselected information sources to guide students as they develop their IL skills (Al-Qallaf & Aljiran, 2021). These concerns about the IL competencies possessed by high school students and how to teach IL extend to the educators in higher education institutions, as evidenced by research conducted by Baird and Soares (2020), Bury (2011), Dubicki (2013), and Stebbing et al. (2019).

Information Literacy in Higher Education and Teaching Faculty

The teaching of information literacy in higher education settings provides another opportunity to learn about teacher practices. Stebbing et al. (2019) sought to answer the primary question about how IL is perceived by higher education faculty. The researchers worked from a position that a mutual understanding of the curriculum and of each other's roles in the academy between librarians and teaching faculty, and a more detailed comprehension of the view teaching faculty have of IL, would be beneficial to librarians, teaching faculty, and students. Other researchers have confirmed the concerns about the teaching of IL in higher education settings found by Stebbing et al. (2019). Dubicki (2013) documented inconsistencies regarding who should teach IL. Other research investigated and described effective IL content delivery (Bury, 2011). Other research delved into the appropriate contexts for IL instruction and queried the merits of subject-specific interventions versus the teaching of IL in generalized curricula fit for teaching in a broader context (McGuinness, 2006; Morrison, 2007).

The study by Stebbing et al. (2019) revealed eight themes: the basic use and communication of information; differences between academic disciplines; and the student transition to higher education, among others. The researchers noted interesting and compelling results from the thematic analysis including the tendency of academics to situate information within their discipline, the importance of having knowledge of subject-specific artifacts rather than overall IL competencies, and the importance of students being adequately prepared for the rigors of college work. The researchers stress the importance of helping students to develop IL skills early in their schooling, prior to entering higher education institutions (Stebbing et al., 2019). These findings are also supported by research done by Gross and Latham (2011) and McGeough and Rudick (2018).

Baird and Soares (2020) investigated IL instruction delivery, a common instructional practice at institutions of higher education. Their research confirmed that the success of IL instruction in higher education contexts often hinges on the attitudes of the teaching faculty towards IL instruction. These attitudes, in turn, impact the degree of collaboration between librarians and teaching faculty. Libraries and first-year writing programs both serve important functions in the initial stages of student academic development and, as such, a deeper understanding of the relationship between libraries and first-year writing programs would be beneficial. The purpose of their study was to explore what first-year writing instructors think about the IL skills of their students and how their responses intersected with the IL instruction provided by the university's library. Baird and Soares' (2020) findings about barriers that frustrated the development of IL skills such as insufficient competency acquisition in high school, unawareness of their knowledge deficits, student attitude regarding citations, an inappropriately high level of confidence, and information overload were supported by other

research (Correll, 2019; Hossain, 2022). These present some conditions that can be alleviated through motivating factors that encourage the development and use of critical thinking skills, among them IL skills (Sobel, 2021).

Measurement of Information Literacy

Several methods of measuring information literacy competency exist, including those with a library focus and those with a more general approach (Hollis, 2018). These means of evaluating the IL competency range from comprehensive programs mapped to traditional educational programs to compact instruments for measuring the IL skills of individuals on occasion (AASL, 2018; ACRL, 2015; Common Core State Standards Initiative, 2009; Garcia et al., 2021; Hollis, 2018; Partnership for 21st Century Learning, 2019).

Information Literacy and Library Measurements

Information literacy, or facets thereof, is measurable through a variety of instruments, many of which focus on the specific IL concerns of librarians and information scientists (Hollis, 2018). In a study of freely available IL instruments, Hollis (2018) identified 12 such assessment tools that could be used, 11 intended for use in higher education settings, and 1 (*Project Trails*) aimed at high school students. Six of the IL instruments (Information Evaluation Pre- and Post-Test; Information Literacy Survey; Information Literacy Test for Higher Education; Information Search Tasks; Information Skills Survey; and Locally Developed IL Test) were not scoped to measure IL in a specific domain. The remaining five tests (B-TILED; IL Test for Chemistry Students; Information Literacy-Psychology; PIKE-P; and VOILA) were targeted to measure IL competency within specific disciplines. Hollis (2018) detected a need for a greater variety of freely available IL instruments that are generic in nature and not constrained by contextual or topical needs.

Information Literacy and Extra-library Measurements

Students entering college and those engaging in advanced degree pursuits can benefit from IL instruction that builds their IL skills and prepares them to be successful in their chosen area of study (Dawes, 2019; Farmer & Phamle, 2021; Garcia et al., 2021; Kocevar-Weidinger et al., 2019). The problem with many of the IL instruction methods is that they tend to have a bias toward library-specific tools and practices, and, given such a bias, are unable to provide discipline-specific instruction (Garcia et al., 2021). Garcia et al. (2021) took inspiration from an existing IL skills assessment (the PIKE-P, which stands for Procedural Information problem-solving Knowledge Evaluation-Psychology) and customized it to meet the needs of Spanish students preparing to study educational science, thereby creating the Procedural Information problem-solving Knowledge Evaluation-Education (PIKE-E) assessment. Hollis (2018) included the Procedural Information problem-solving Knowledge Evaluation-Psychology (PIKE-P) in their review of IL instruments. The PIKE-E and PIKE-P provide measurements of IL skills that are not situated within traditional library-centric IL skills assessment and expand the contextual relevance of IL (Garcia et al., 2021).

Information Literacy Standards in Education

The development of standards for the teaching of IL in formal educational settings in K-12 through higher education has resulted in models that are complementary and iterative, moving from standards detailed in the Common Core State Standards Initiative (2009) to the model provided by the Partnership for 21st Century Learning (2019) for use in K-12 educational settings, to the *Framework for IL for Higher Education* published by the ACRL (2015) section of the ALA. The AASL section of the ALA also provides a set of standards for the teaching of IL

skills in the context of school libraries with the *National School Library Standards for Learners, School Librarians, and School Libraries* (AASL, 2018), also known as *National School Library Standards*.

The Common Core State Standards Initiative

The Common Core State Standards were introduced by the Common Core State Standards Initiative (2009) and updated by leaders at the state level in 2014 in an effort to create a set of national learning goals that would prepare students for life after high school with skills they could use throughout their lives (Eubanks, 2014; Fuchs & Ball, 2021). The standards were created with the express intention of identifying the mental steps and knowledge acquisition strategies learners require to effectively learn what they are taught as part of school curriculum (Rust, 2012). The standards include proficiency levels for all levels of K-12 education, with foundational (Anchor) standards and English Language Arts (ELA) standards that apply to reading, writing, speaking, and language (Common Core State Standards Initiative, 2009). While the Common Core State Standards do not explicitly mention IL, there are three anchor standards and one ELA standard that align with IL concepts by setting proficiency expectations for researching and presenting information and writing (Eubanks, 2014).

National School Library Standards for Learners, School Librarians, and School Libraries

The AASL published the *National School Library Standards for Learners, School Librarians, and School Libraries,* sometimes referred to as *National School Library Standards*, in 2018 (Burns et al., 2019). The standards are a work in progress, with students not yet fully reaching proficiency (Atkinson & Thornton, 2021; Baird & Soares, 2020; Burns et al., 2019; Valenza et al., 2022). The *National School Library Standards* include standards for teaching IL that address student abilities to inquire, include, collaborate, curate, explore, and engage with

information artifacts and processes (AASL, 2018). The standards framework utilizes a comprehensive approach that integrates standards for the three categories identified in the title (learners, school librarians, school libraries) and connects them to a suite of six foundations (inquire, include, collaborate, curate, explore, engage) that each contain four domains (think, create, share, grow).

Partnership for 21st Century Learning

The Partnership for 21st Century Learning was formed in 2002 in response to a perceived need from educators and business leaders to better educate children for learning, work, and life in the 21st century (Partnership for 21st Century Learning, 2019). Students will need to learn skills in the areas of critical thinking, communication, collaboration, creativity, and grow knowledge and expertise in new content areas such as media technology to be successful in all aspects of life (Partnership for 21st Century Learning, 2019). The *Framework for 21st Century Learning Definitions* identifies nine core competencies of reading, writing, and mathematical reasoning, along with themes deemed relevant to the 21st century such as world languages, economics, arts, science, geography, history, and government. These key subjects are overarched by the development of skills related to life and career, learning and innovation, and information and technology skills, which include information and media literacy. These key subject areas and skills are supported by a pedagogical foundation of standards and assessments, curriculum and instruction, professional development, and learning environments (Partnership for 21st Century Learning, 2019).

Framework for Information Literacy for Higher Education

The *Information Literacy Competency Standards for Higher Education*, developed by the ACRL section of the ALA, maintained a focus on the development of IL skills until 2014, when

it began a shift to threshold concepts, which provide a broader base of cognitive development

(Burns et al., 2019). The revisioning of the *Framework* led to the development of six anchoring

concepts that are integral to the information life cycle: authority, process, value, inquiry,

conversation, and exploration. The *Framework* is intended to provide guidance to academic

librarians, teaching faculty, and other stakeholders as they engage in conversations concerning

pedagogy and develop curricula for the development of learner IL competencies (ACRL, 2015).

Information Literacy of Learners in K-12 Secondary and College

Information literacy competency development is an important component of the

educational process that occurs in secondary schools. Research by Černý (2021), Correll (2019),

and Saunders et al. (2017) has investigated the development of IL skills in high school settings

and the importance of IL skills for successful academic performance beyond high school, with

the general findings from the research indicating IL skills development in high school students

that are insufficient (Correll, 2019; Saunders et al., 2017; Svensson et al., 2022). Contradictory

research by Kocevar-Weidinger et al. (2019) has shown that the skills students develop prior to

attending college are not as substandard as other researchers (Correll, 2019; Saunders et al.,

2017; Svensson et al., 2022) have found. Information literacy competency measured within a

Constructivist framework recognized that students possessed IL skills that should be appreciated

(Kocevar-Weidinger et al., 2019).

Information Literacy: K-12 Secondary Schools

Some researchers (Černý, 2021; Correll, 2019; Kocevar-Weidinger et al., 2019; Lanning

& Mallek, 2017) have conducted research that combines a substantive literature review with

original research into IL in secondary schools. Černý (2021) reviewed the IL literature in two

prominent databases that cover the library and information sciences from 2016-2021 and located

32 documents to analyze for essential themes. The researcher stated the findings of the literature review rather bluntly: "The standard discourse of all analysed literature is unambiguous – IL is an important and socially significant topic, which is not appreciated in the secondary school environment and should be given more attention" (p. 518). The results of the research with high school students revealed that students mentioned the librarians in their schools only occasionally when discussing IL concepts, referring primarily to their teachers and the larger school as the sources for learning about and developing IL skills.

Correll (2019) found that inconsistencies existed in the IL instruction provided to high school students in a university's pool of feeder schools. Saunders et al. (2017) queried high school and college librarians about the IL skills and college-readiness of their students, with high school librarians rating the skills of students higher than their academic colleagues, a situation that is similar to what Lanning and Mallek (2017) revealed in their study of students in a low-level college course that students could opt out of if they received a satisfactory score (70%) on a class pre-test. The researchers concluded that even good high school students have IL competencies that are insufficient for the demands of college and that formal IL instruction is necessary. Kocevar-Weidinger et al. (2019) challenged this identification of IL deficiencies that must be remediated during college. Instead of considering the IL skills students bring with them to college as deficits, Kocevar-Weidinger et al. (2019) suggest, in keeping with a constructivist pedagogical model, might be understood as gaps in formal IL knowledge, and that students have developed strengths and strategies to compensate and succeed in high school. The researchers found that some of the research habits and skills possessed by students could translate in successful college-level strategies with IL instruction that provides guidance and support within a constructivist theoretical context (Kocevar-Weidinger et al., 2019).

The student participants in a study conducted by Al-Qallaf and Aljiran (2021) rated their ethical use of information aptitude the highest (in the very top of the Good range), their IL and effective use of information skills in the upper range of Good, and their information-seeking skills in the middle of the Good range. Most students reported using the Internet for schoolwork rather than seeking help from a librarian. While these results indicate a functional level of IL competency among students, it should be noted that students were not assessed on their IL skills as part of this study, only on their perceived competency levels (Al-Qallaf & Aljiran, 2021). This trend in overconfidence in self-reporting one's abilities is known in the research as the Dunning-Kruger Effect and is well-documented (Bradley et al., 2022; Coutinho et al., 2020; Hack-Polay et al., 2020; Harvey, 1997; Nierenberg & Dahl, 2021; Spisak, 2022).

Information Literacy: College

Recent high school graduates often have IL skills that are perceived to be insufficient for college-level work by college faculty (Schaub et al., 2017; Svensson et al., 2022). This lack of IL competency means students need additional IL instruction to prepare them for the work expected of them in college (Lanning & Mallek, 2017; Marineo & Shi, 2019) and can place college students at risk of violating academic integrity policies (Hossain, 2022). Students can also adopt research habits that incorporate undesirable information-seeking behaviors that lead to the formation of flawed arguments in class assignments (McGeough & Rudick, 2018).

Schaub et al. (2017) investigated the development of information literacy skills as part of the learning arc students experience during college. This process of becoming an information literate person is complicated when students lack an understanding of key technical terms used in the pedagogical practices associated with information literacy instruction at the college level.

The research conducted by Schaub et al. (2017) on undergraduate students at a large public university demonstrated that students do not come to college with a working knowledge of terms commonly used when discussing information literacy and will benefit from direct instruction on these terms, which they are most likely to receive in a programmatic manner from a librarian and incidentally from within their chosen discipline. According to researchers such as Kocevar-Weidinger et al. (2019) and Cooperstein and Kocevar-Weidinger (2004), this lack of working vocabulary is a library-centric technical skill that overshadows the IL skills and information-seeking habits of students.

A critical component of IL investigated by Hossain (2022) is Academic Integrity Literacy (AIL), which focuses on the ethical values associated with IL, a concept that is foundational within a scholarly context and which is affirmed by IL frameworks and constructs such as those from the AASL (2018), the ACRL (2015), Common Core State Standards Initiative (2009), and the Partnership for 21st Century Learning (2019). Essential as this aspect of IL is to the development of students as ethical information-consuming and producing agents, several factors reduce the acquisition of AIL concepts in K-12 institutions, including lack of instruction, limited use of software to check for originality, lack of sophistication on the part of educators regarding varying levels of plagiarism, limited collaboration between librarians and teachers, and an absence of institutional policies and practices in the area of AIL (Hossain, 2022). Academic dishonesty, a phenomenon with implications from elementary education through the lifespan, is a common concern shared by educators around the world, yet very little is known about the student experience associated with AIL acquisition in the later portion of K-12 education. Further, there are indications that secondary schools sometimes fail to teach students how to use information ethically (Morrow, 2018).

Hossain (2022) sought to answer questions about the K-12 AIL experience of first-year students enrolled in an online university, their opinions about AIL, and what their teachers think about their experience with first-year students and the AIL skills possessed by those students. Most students responded that they received AIL instruction at the participating higher education institution as well as in high school. Almost half of the students responded that a teacher or librarian had taught them about plagiarism during middle or high school with most reporting that plagiarism was regarded negatively in their cultural context, and almost half indicating that plagiarism was not unethical or providing a neutral response. Newton (2016) found that college students who had recently started their undergraduate careers had higher confidence in their IL skills while simultaneously ranking lower in their comprehension of the IL concepts of citing sources and intellectual integrity (plagiarism).

Faculty member responses reported by Hossain (2022) regarding the AIL competence of their students and the effective methods of teaching AIL were the two themes analyzed in the study. Most of the instructors indicated that they believed their students had a significant level of AIL competence, but these same students did not apply their AIL skills in their coursework. Instructors that did not express confidence in their students' AIL awareness and skills provided a rather grim view of the state of their students' AIL skillset. Varlejs and Stec (2014) obtained results that confirmed students do not possess refined IL skills and are often unable to translate what they have learned in direct IL instruction to an application setting. Research into the IL skills of first-year college students shows that high school students lack the IL skills to perform well in college (Donham, 2014). Instructors shared several strategies that they found to be effective in encouraging the learning of AIL skills such as consistent correction, providing

examples, reminding students of the university policy on academic integrity, and teaching students how to use available software to check their work for originality (Hossain, 2022).

Learners in the 21st century need to possess a high level of IL fluency in order to successfully participate in the dynamic world of work and the continuously fluctuating demands of work (Bhat & Stevens, 2021; Foote, 2016; Green et al., 2021; Phillips & Lee, 2019). Robust collaboration between academic librarians and teaching faculty is necessary to push traditional IL instruction, construct appropriate learning outcomes for students, and make IL instruction more substantial than it is in its current form (Burns et al., 2019; Cox, 2018; Gaha et al., 2018; Svensson et al., 2022). Svensson et al. (2022) investigated the student IL experience and the correlating perceptions of teachers regarding IL competency and knowledge gaps that could have a detrimental impact on students in the future focused on environmental science, an interdisciplinary area of study that has many elements that make it challenging for students to translate discipline-specific information practices and skills to it. The teaching of lower- and higher-order IL and information-processing skills are of heightened value to students in interdisciplinary fields of study, a finding supported by research into political science (Atkinson & Thornton, 2021; Harkness et al., 2021), and environmental science (Svensson et al., 2022).

Lanning and Mallek (2017) investigated first-year college students as they begin their higher education journeys and the wide range of IL abilities, some of which are insufficient to meet college-level research demands they possess. Some higher education institutions require students to take a course so they can teach them critical IL skills and facilitate the successful transition to college. These courses are typically delivered online (Davis & Watson, 2017; Lanning & Mallek, 2017) or face to face (Marineo & Shi, 2019). Collins (2009) reported on summer enrichment programs, which can include summer bridge programs for students planning

on enrolling in college, that help students experience being on a college campus. These courses, which provide introductory instruction regarding basic college research skills, can be taught independently by the institution's librarians (Alexander & Wood, 2019), or collaboratively with teaching faculty (Douglas & Rabinowitz, 2017). Marineo and Shi (2019) reported that the use of online learning management systems for the delivery of library instruction has grown as librarians have responded to the need to provide instruction to more students and move away from single-session library instruction. Additionally, first-year and library programming objectives are often in alignment due to the support they provide in laying the foundation for future academic work. The study found that online IL courses, when integrated with library services, can yield benefits to student academic success that are also measurable (Marineo & Shi, 2019).

Lanning and Mallek (2017) sought to investigate both the influence of factors that might help students perform well on a class pre-test and the impact of such a low-level course on students at a university in the Mountain West region of the United States by analyzing demographic and other unique factors associated with students participating in the study and how those factors aligned with performance on measurements from the course. The study found that students were generally in possession of underdeveloped information literacy skills, a condition that is not unique, as evidenced by research from Varlejs and Stec (2014), Gross and Latham (2011), and McGeough and Rudick (2018). Lanning and Mallek's (2017) study found that high school students, even those considered good students, generally possess IL skills that are inadequate for college work, and that there is a need for formal instruction in IL during college, a finding that is supported by multiple studies (Gross & Latham, 2011; Maybee et al., 2015; McGeough & Rudick, 2018; Riehle & Hensley, 2017).

The main issue encountered by current information seekers, discovering information artifacts that are reliable and evidentiary, is very different from the one faced by previous generations, which was a matter of access (McGeough & Rudick, 2018; Schaub et al., 2017; A. Taylor, 2012). McGeough and Rudick (2018) studied students in college level communication courses who are presented with the same challenges of resource evaluation as other information seekers. Information literacy is a critical skill that college students must develop, a position shared by researchers who tend toward traditional interpretations of IL like Schaub et al. (2017) and A. Taylor (2012), and those who take an approach to IL that is emergent and constructivist, such as Cooperstein and Kocevar-Weidinger (2004), Ilett (2019), and Kocevar-Weidinger et al. (2019). Many students must work to gain a level of competency that is sufficient for college level work (McGeough & Rudick, 2018; Schaub et al., 2017). In so doing, students adopt and strengthen habits of mind to shorten the decision-making process when it comes to the evaluation of information discovered during the search process, thereby establishing heuristic processes (McGeough & Rudick, 2018). Academic librarians are well-positioned to help students develop these critical skills and habits as research by Nimon (2001) regarding the valuable role academic librarians have in helping students grow their information literacy skills through collaboration with faculty and customized IL instruction has shown. Zanin-Yost's (2018) study investigated the impact of an embedded librarian on curricular changes that occurred through collaborative efforts with the teaching faculty. These changes were shown to have a positive effect on the levels of anxiety experienced by the students focused on in the library research (Zanin-Yost, 2018).

Collaboration

The impact of collaboration in educational settings, especially between librarians and classroom teachers, is an area of increasing research interest (McKeever et al., 2017; Montiel-Overall, 2005; Slater, 2004; Soulen, 2021; Stewart & Deans, 2020). Collaboration between professional educators is defined by the U.S. Department of State (2017) as a relationship that is formed by participants who work together as equals. This enhanced level of working together is more involved than coordination or cooperation, which are necessary antecedents to the integrated instruction, which exhibits a working relationship with a greater degree of collaboration (Montiel-Overall & Jones, 2011).

Research shows that collaboration between teachers and librarians has a positive impact on improving student learning outcomes (Haycock, 2007; Lance et al., 2010; Lowe et al., 2020). Findings regarding the efficacy of teacher/professor and librarian collaboration are consistent across K-12 (Copeland & Jacobs, 2017; Haycock, 2007; Lance et al., 2010; Maharaj, 2016) and higher education settings (Lindstrom & Shonrock, 2006; Lowe et al., 2020; Wishkoski et al., 2019). Faculty members in teacher education programs also support the concept of collaboration between teachers and librarians as beneficial for preservice teachers (Latham et al., 2013; Moreillon, 2008).

Collaboration with Teachers in Teaching

McKeever et al. (2017) explored the perspectives of school librarians on the information literacy skills and collaboration levels of classroom teachers and found that teachers infrequently collaborated with librarians and that library staff reported that teachers possessed limited information literacy skills. Similarly, Stewart and Deans (2020) conducted a study that revealed a low level of collaboration between teachers and librarians. This study emphasized the influence

of school administrators on the levels of librarian and teacher collaboration. The practice of collaboration between librarians and teachers was brought into the sharpest focus by Montiel-Overall in singular (2005, 2008, 2009b, 2010) and, later, collaborative research projects that sought to develop a theory of librarian and teacher collaboration (Montiel-Overall & Hernandez, 2012; Montiel-Overall & Jones, 2011). The research broadly supports and encourages collaboration in schools to promote positive student outcomes and enhance professional qualifications for both librarians and teachers (McKeever et al., 2017; Merga et al., 2021; Montiel-Overall, 2005; Slater, 2004; Soulen, 2021; Stewart & Deans, 2020).

Collaboration with Teachers Beyond Teaching

Other researchers have taken a broader view of collaboration, expanding the scope of their research to investigate the concept of collaboration in educational settings in general and finding that collaboration is a critical component of adaptable and effective schools (Gross & Witte, 2016; Slater, 2004; Soulen, 2021). Gross and Witte (2016) explored the potential of integrating collaboration between school librarians and pre-service teachers during a teacher education program and a school librarian training program. Their research found that the students did not fully develop collaborative relationships, with most collaborative activities isolated to work-planning sessions. Slater (2004) sought to build on a theoretical understanding of collaboration and apply it to schools in a comprehensive manner. Soulen (2021) focused on librarians as mentors to new teachers, bringing the concept of collaboration in educational settings into the realm of specific situations.

Challenges to Establishing Collaboration Between School Librarians and Teachers

Research shows that establishing collaborative relationships between school librarians and teachers can be challenging for several reasons. A lack of understanding and appreciation for

each other's roles and responsibilities is one major factor that frustrates collaboration (Hargreaves, 2019; Kammer et al., 2021; Lowe et al., 2020; Mertes, 2014; Montiel-Overall, 2008; Stewart & Deans, 2020). Time constraints created by teacher schedules that do not provide dedicated time for meeting with school librarians and workloads that focus on a commitment to direct instruction also prevent teachers and school librarians from collaboration with each other (Kammer et al., 2021; McKeever et al., 2017; Mertes, 2014). This problem of isolation also prevents teachers from collaborating with each other (Hargreaves, 2019). Another barrier to collaboration between teachers and school librarians is teacher resistance to incorporating library resources and the school librarian in their classrooms (Crary, 2019; Stewart & Deans, 2020). Limited funding and opportunities for training on how to collaborate effectively with one another is another factor that restricts collaboration between school librarians and teachers (Montiel-Overall, 2008; Montiel-Overall & Hernandez, 2012; Stewart & Deans, 2020).

Elements that Promote Collaboration Between School Librarians and Teachers

Research on school librarian and teacher collaboration reveals several factors that promote this critical professional relationship between teachers and school librarians. Support from school administration that creates a culture of collaboration is a key factor (Church, 2008; Loh et al., 2021; Lupton, 2016; Mahaffey et al., 2020; O'Neal, 2004). Professional development opportunities, for which administrator support is crucial for gaining encouragement and structural supports, are another means of promoting collaboration between teachers and school librarians (Kammer et al., 2021; Montiel-Overall & Hernandez, 2012; P. D. Taylor, 2015). Clear communication and a shared understanding of each other's roles and responsibilities that build trust are additional factors that support collaboration between school librarians and teachers (Anggreini & Mutia, 2022; Rinio, 2018).

Conclusion

A review of the literature reveals that IL, a content area largely associated with libraries and the work of librarians, is widely recognized as an essential competency in the 21st century (Anderson & Jiang, 2018; Zurkowski, 1974). Librarians and libraries have a long and important role in educational settings (ACRL, 2015; Farmer & Phamle, 2021; Office of Educational Research and Improvement, 1984). Librarians acknowledge and adhere to professional practices and standards that promote the explicit teaching of IL concepts to students so they can have a functional level of competency (AASL, 2018; ACRL, 2015). The teaching of IL skills works best when it is connected to the curriculum (Correll, 2019), is delivered just in time (Yevelson-Shorsher & Bronstein, 2018), and takes place in collaboration with teaching faculty (Correll, 2019; Harkness et al., 2021). However, the literature also demonstrates that the collaborative and coordinated teaching of IL concepts in secondary educational institutions (high schools) is inconsistent at best (Correll, 2019; Eri & Pihl, 2017; Montiel-Overall & Jones, 2011).

Sometimes high school classroom teachers work with school librarians, who may or may not be degreed librarians with formal education in IL (Correll, 2019; Phillips & Lee, 2019). In some cases, the task of IL instruction is left up to the classroom teacher because the school does not employ a librarian or other individual professionally qualified to collaborate in providing this critical 21st century way of thinking (McKeever et al., 2017). Not all teachers, in K-12 (Shannon et al., 2019) or higher education (Stebbing et al., 2019; Svensson et al., 2022), are aware of the specific, established standards that apply directly to librarians, relying instead on IL standards within their area of expertise. As a result, students receive inconsistent instruction in the area of IL and may miss opportunities to develop IL competencies during K-12 school, leaving them ill-prepared for life after high school (McKeever et al., 2017; Shannon et al., 2019). The literature

shows that there is a gap in the published research on the perceptions teachers have of the information literacy skills possessed by their students and teacher perceptions of the library, school librarians, and the level of collaboration taking place between the teachers and school librarians (Crary, 2019; Shannon et al., 2019; Svensson et al., 2022).

In order to ensure that students receive consistent and robust instruction in IL, which is a vital 21st century content area, it is crucial to understand who is teaching this content, what exactly is being taught, and how competent teachers believe their students to be in the context of IL (Al-Qallaf & Aljiran, 2021; McKeever et al., 2017; Saunders et al., 2017; Shannon et al., 2019). Montiel-Overall (2005) found that collaboration between school librarians and teachers is a critical component in providing a robust educational experience for students, and that it is not easy to establish and maintain a culture of collaboration within schools. With this information, we can then begin to make recommendations to enhance the delivery of IL instruction in high school and help prepare students for life in the 21st century.

Chapter III: Design and Methodology

Introduction

Experts in research design and methodology such as Creswell and Guetterman (2019) provide guidance in the development of research design, which includes the provision of a theoretical framework to undergird the study, the specific methodology to be used, the identification of study participants, and the explanation of the data collection and analytical methods. Details about the participants and study limitations are also included in a comprehensively configured research design.

This doctoral research study utilized constructivist theory (Vygotsky, 1978), Kuhlthau's Information Search Process (1988, 1990, 1993), and teacher and librarian collaboration (Montiel-Overall, 2005; Montiel-Overall & Hernandez, 2012) as the lens through which high school content area teachers' perceptions of the information literacy skills possessed by their students are viewed with a secondary focus on school librarians. This study into the perceptions teachers have of the IL competency skills possessed by their students, the confidence of teachers in their ability to teach IL competency skills, their perceptions of their school libraries, and their perceptions of school librarians as evidenced by reported levels of collaboration, is grounded in theoretical frameworks from constructivism and collaboration. Constructivism (Vygotsky, 1978) emphasizes the importance of interaction between learners, other persons, and the environment in the process of knowledge construction. Collaborative relationships are powerful instances of interpersonal interaction that provide teachers with learning opportunities about IL (Montiel-Overall, 2005). As teachers encounter ZPD during collaboration with librarians, they are able to increase their knowledge of IL (Mertes, 2014; Shannon et al., 2019; Shonfeld et al., 2021; Zanin-Yost, 2018). This increase in knowledge of IL in teachers constructed through the collaboration

process has the potential to benefit student IL competency. Additional theoretical support comes from the information literacy theoretical framework developed by Kuhlthau's Information Search Process (1988, 1990, 1993). The study also incorporated Montiel-Overall's (2005) Teacher Librarian Collaboration (TLC) theory, further developed a few years later (Montiel-Overall & Hernandez, 2012), as the third concept.

The researcher focused on questions that genuinely and authentically investigate the perspectives of classroom teachers as they pertain to the information literacy competency of their students and the professional working relationships they have with school librarians. The following research questions guided this study:

RQ1: Is there a significant relationship between teacher perceptions of student information literacy competency skills and teacher content area, school classification, school size, and librarian credentials?

H01: There is no relationship between teacher perceptions of student information literacy skills and teacher content area, school classification, school size, and librarian credentials.

RQ2: Is there a significant relationship between teacher and librarian collaboration levels and teacher content area, school classification, school size, and librarian credentials?

H02: There is no relationship between teacher and librarian collaboration levels and teacher content area, school classification, school size, and librarian credentials.

RQ3: What is the reported experience of collaboration between high school teachers and school librarians from the teacher perspective?

A gap may exist in the research regarding the perceptions of student IL competency skills held by teachers in the Mountain West states of Idaho, Montana, Nevada, Utah, and Wyoming, and the level collaboration that occurs between teachers and school librarians in the Mountain

West. Information literacy competency is recognized as a critical skill needed for success in the 21st Century (Media Literacy Now, 2023; Phillips & Lee, 2019) and credentialed librarians are key participants in the development of IL skills competency (Farmer & Phamle, 2021; Lance & Hofschire, 2012; Pasquini & Schultz-Jones, 2019). Given the importance of IL competency skills and the key role school librarians have in helping students develop IL competency skills, data regarding the perceptions of teachers about the information literacy skills of their students and the level of collaboration between teachers and librarians is needed. This chapter explains the methodology for this mixed methods, explanatory sequential, non-experimental study. This study was grounded in survey responses from 11th-12th grade teachers in the Mountain West states of Idaho, Montana, Nevada, Utah, and Wyoming, who taught in a brick-and-mortar school during the fall of 2023. The survey utilized questions from an survey on information literacy (Dubicki, 2013) and teacher and librarian collaboration (Montiel-Overall & Hernandez, 2012), which were modified by the researcher to fit the needs of the current study.

An anonymous online survey, designed by the researcher and delivered using the Qualtrics survey program (Appendix A), was used to collect information from 11th-12th grade teachers working at brick-and-mortar schools in the Mountain West states in the fall of 2023. The online survey asked respondents to report demographic information about themselves as teachers and their schools, their perceptions of the IL competency skills possessed by their students, and their level of collaboration with school librarians. The online survey used in this study consisted of three sections. The first section consisted of demographic questions designed by the researcher and included inquiries into the following: state where teaching, school type, school classification, school size, primary teaching discipline, grade taught, years teaching, highest degree completed.

The second section included questions modified from Dubicki's (2013) "Faculty Perceptions of IL Survey." The survey was designed to investigate the perceptions academic faculty members at eight institutions of higher education in the mid-Atlantic region of the United States (Dubicki, 2013). The survey consisted of 17 questions covering demographics, categories of faculty familiarity with IL, importance of IL skills for college research, teaching practices related to IL, and faculty perceptions of student IL competency (Dubicki, 2013). The survey instrument used two five-point Likert scales with the options of "Very important," "Somewhat important," "Not too important," "Not at all important" for a section on IL skills importance and "Don't know" and "Excellent," "Good," "Satisfactory," "Poor," and "Don't know" for a section on student IL competency. The survey instrument also included a four-point Likert scale of "Strongly agree," "Agree," "Disagree," and "Strongly disagree" on two questions related to faculty sentiments about student IL competency upon graduation. The survey also included multiple choice questions and open response about faculty familiarity with IL and assignments used to teach IL. Dubicki's survey also included a "Yes/No" question about the teaching of IL skills. The survey instrument was not confirmed by external research to be reliable or valid, neither was it discredited. The questions used in the modified version for this study consisted of demographics, teacher perceptions of IL competency skills importance for high school students, teacher perceptions of the IL competency skills possessed by their students, and teaching practices regarding IL competency. Four-point Likert scales were used instead of the five-point Likert scales used by Dubicki (2013) in order to encourage respondents to reflect on the question and not select a neutral option for the sake of expediency (Asún et al., 2016).

The third section of the survey was comprised of questions from Montiel-Overall and Hernandez's (2012) survey on teacher and librarian collaboration, the TLC-III. As the name

implies, Montiel-Overall developed and rigorously tested the instrument over a several years, beginning in the mid-2000s, when Montiel-Overall (2005) first proposed an updated theory of teacher and librarian collaboration. The 24 items developed by Montiel-Overall and Hernandez (2012) served as the core of this section of the survey. The questions functioned as paired sets independent questions with the first question asking about the frequency of collaborative activities between teachers and school librarians and the second question of each pair asking about the importance of the particular collaborative activity. Seven questions on school libraries preceded the TLC-III question set. Two ranking questions, one on ranking collaboration frequencies and one ranking barriers to collaboration, and an open response option to allow respondents an opportunity to share additional information provided a bookend to the TLC-III question bank.

The final section of the survey consisted of a question that asked participants if they would be interested in participating in a post-survey interview with the researcher. Participants who answered "no" to this question were directed to a survey exit page that thanked them for their time and directed them to follow a link to an external form where they could provide their name and email address for inclusion in a drawing for one of five (5) Visa egiftcards as a sign of appreciation from the researcher. Participants who answered "yes" to this question were directed to an exit page that thanked them for their time and participation and asked them to follow a link to an external form where they were asked to provide their name and email address and if they, too, would like to be included in the drawing for one of five (5) Visa egiftcards as a sign of appreciation from the researcher. The follow-up interview protocol included a set of research designed questions (see Appendix E). The intention of the follow-up interview was to gather detailed information to enrich and more fully understand teachers' confidence in teaching IL

competency skills, the perceptions teachers have of their students' IL competency skills, and teachers' perceptions of and collaboration with school librarians.

Survey data was collected during the months of November, 2023 and January, 2024. Follow-up interviews were conducted in January of 2024. The timeline provided the researcher with sufficient time to obtain data, send reminder emails to possible survey participants, conduct follow-up interviews, and perform data analysis. Qualtrics, an online survey platform, was utilized to collect survey responses. The survey results were stored securely on a password protected computer. The data were analyzed with SPSS using a combination of descriptive and inferential statistics.

There are nine dependent variables and four independent variables associated with this study. The first five dependent variables are related to teacher perception of student IL skills competency. The first dependent variable is Student IL Skills Competency: IDs and Addresses Information Need. The second dependent variable is Student IL Skills Competency: Accesses Information Effectively and Efficiently. The third dependent variable is Student IL Skills Competency: Evaluates and Thinks Critically About Information. The fourth dependent variable is Student IL Skills Competency: Uses Information Effectively for a Specific Purpose. The fifth dependent variable is Student IL Skills Competency: Uses Information Ethically and Legally. The second group of four dependent variables, six through nine, are related to the level of teacher and librarian collaboration, measured on four levels. The sixth dependent variable is Teacher Librarian Collaboration: Coordination. The seventh dependent variable is Teacher Librarian Collaboration: Cooperation. The eighth dependent variable is Teacher Librarian Collaboration: Integrated Instruction. The ninth dependent variable is Teacher Librarian Collaboration: Integrated Curriculum. The first independent variable is teacher content area (primary teaching

discipline). The second independent variable is school classification (urban/rural designation). The third independent variable is school size. The fourth independent variable is librarian credentials.

Researcher Control of Bias

The researcher makes several declarations regarding the research study and the steps taken by the researcher to aid the researcher in identifying and control for potential bias, which could have an adverse impact on the study. First, the researcher is an academic librarian at a private liberal arts college in one of the states included in the study. Second, the researcher had no close relationships with any of the teachers included in the study, although it is possible that the school where his spouse works is included in the study. Third, the researcher exerted no undue influence on any of the participants. Fourth, the researcher has no authority over any of the survey participants. Fifth, the researcher acknowledges that, as an academic librarian, he has a vested interest in the information literacy competency of high school students who go on to college and, as a citizen of the United States, he has a general interest in the information literacy of all high school graduates. Finally, the researcher declares that the intent of this study is to obtain trustworthy and reliable answers to the research questions by a methodology that is grounded in professional integrity and the highest ethical standards.

The researcher recognizes the potential for bias to enter and influence the interpretation of qualitative data. Subjectivity is inherent in the investigation of qualitative phenomena. The researcher took measures to ensure that he was aware of his position as a participant in collection of qualitative information during the interviews and as the interpreter of the qualitative data during the analysis phase. First, the researcher conducted the process of bracketing, a self-reflection practice that assists the researcher in acknowledging and mitigating presuppositions

that may color the research process (Tufford & Newman, 2012). The researcher recorded the reflections as declarations, noted in the preceding paragraph, and printed a copy, which was placed in a conspicuous location on the wall in the researcher's dedicated study area. Second, the researcher also kept a notebook that was available during the research process in which to write notes, reactions, and questions so he could be aware of his thoughts and emotional responses associated with the research. During analysis of the qualitative data, the researcher referred to the notes and reflected on the reactions and questions that arose in a further attempt to bracket and control for personal bias. This exercise was especially helpful during thematic analysis and coding, as it helped the researcher keep focused on the words and ideas expressed by the interview participants, which resulted in themes and codes that authentically represented the position of the interview participants. Lastly, the researcher utilized the practice of member checking to provide interview participants with an opportunity to verify the accuracy and authenticity of the researcher's understanding and reporting of their interviews. Member checking is an essential method of identifying and reducing the chance of misinterpretation of participant intention (Maxwell, 2012).

Research Design

The purpose of this mixed methods, descriptive, explanatory sequential, non-experimental study was to 1) investigate teacher perceptions of their students' IL skills competencies through the lenses of teacher content area, school classification, school size, and librarian credentials; 2) investigate the significance of any relationships between teacher reported levels of collaboration with a school librarian that exist between teacher content area, school classification, school size, and librarian credentials; and 3) investigate the reported experience of

collaboration between high school teachers and school librarians from the teacher perspective through in-depth interviews.

Quantitative research methods are appropriate for conducting survey research and collecting data in research scenarios that do not include interventions (Creswell & Guetterman, 2019). Research conducted with surveys is an accepted means of researching trends in a defined population (Creswell & Guetterman, 2019). The aim of the current study is to gather and analyze information from a population scattered across a large geographic area with the intent of understanding the larger forces impacting teacher perceptions of student information literacy skills and the level of collaboration with school librarians. Given these research aims, a quantitative method is justified.

Qualitative research methods are appropriate for research situations that require a structured approach to data collection and analysis that is also flexible and adaptive (Maxwell, 2012). Additionally, qualitative research methods, according to Maxwell (2012), provide for a nuanced interpretation of data while maintaining the primacy of the research questions at the center of the research design. While the Mountain West states do share similarities in size, geography, and population, the people who reside and work in the five states of the Mountain West are individuals with their own thoughts and perspectives. For this reason, a qualitative research method is also appropriate, as it provides a means of obtaining data that allows for a more detailed and sophisticated understanding of the topics covered by the survey (Creswell & Guetterman, 2019). For this reason, a qualitative approach is appropriate. This leads the researcher to the decision to combine both quantitative and qualitative research methods and adopt a mixed methods approach.

Creswell and Guetterman (2019) consider six common mixed methods designs, each of which combine aspects of quantitative and qualitative research methods in different ways: 1) convergent design, 2) explanatory sequential design, 3) exploratory sequential design, 4) experimental design, 5) social justice design, and 6) multistage design. After considering the various mixed methods designs in the literature, the researcher chose to develop an explanatory sequential design. The explanatory sequential design is a mixed methods research approach that starts with the collection and analysis of quantitative data, followed by the collection and analysis of qualitative data, which is used to interpret and more deeply comprehend the quantitative data (Creswell & Guetterman, 2019).

Descriptive research describes the relationships between variables without attempting to establish causation (Hoy & Adams, 2016). An anonymous online survey was utilized to collect information from 11th and 12th grade teachers in the states of Idaho, Montana, Nevada, Utah, and Wyoming. A survey that measures both information literacy perceptions of educators and collaboration between educators and librarians does not currently exist. Two existing surveys that discretely measure the constructs of teacher perceptions of the information literacy skills possessed by their students (Dubicki, 2013) and collaboration between teachers and librarians (Montiel-Overall & Hernandez, 2012) are available. Permission to use the two instruments was sought and obtained for both (Appendix A). Permission to modify the information literacy survey was granted by Dubicki (Appendix A). Permission to modify the teacher and librarian collaboration survey (Montiel-Overall & Hernandez, 2012) was not obtained. The principal research, Montiel-Overall, did not respond to any communication attempts. The chair of the researcher's dissertation committee indicated that the instrument could be modified and used for

the present study due to significant differences between the present study and the original, which focused on elementary grade teachers surveyed after a two-year professional development process.

The researcher then developed interview questions based on the quantitative survey to collect qualitative data. Maxwell (2012) asserts that qualitative research is valuable because it permits flexible interpretations of data within a structure that adheres to the central questions that form the foundation for a research study. Qualitative research is beneficial for deriving meaning about phenomena, understanding the context associated with a particular setting, and comprehending the notion of causation as a matter of process (Maxwell, 2012).

The survey by Dubicki (2013) measured the perceptions of higher education faculty hold about the IL competency skills possessed by their students. The source survey consisted of 17 questions: five Likert scaled questions, three open response questions, two multiple option questions, one yes/no question, and six demographic questions. The survey by Montiel-Overall and Hernandez (2012) measured collaboration between teachers and librarians using four facets based on a progressive level of collaboration: 1) coordination; 2) cooperation; 3) integrated instruction; and 4) integrated curriculum. The four facets were considered using pairs of questions that measured the frequency of activities and the importance of those same activities to student learning. The instrument consisted of 24 paired questions, six pairs per facet. Survey respondents marked their response to each question on a line that began at a value of 1 for Never (for Frequency) and Not at All Important (for Importance to Student Learning) to 4 for Always (for Frequency) and Always Important (for Importance to Student Learning).

The researcher proceeded with developing the study by following the precepts of explanatory sequential design. First, the researcher conducted a thorough review of the relevant

literature on information literacy instruction in secondary schools and collaboration between teachers and librarians. Next, the researcher modified and combined two survey instruments discovered during the literature review process. The first survey (Dubicki, 2013) consisted of 17 questions and focused on college faculty. The survey collected data on faculty demographics, familiarity with IL as a concept, the importance of IL competency skills instruction from the perspective of the faculty member, and faculty perceptions of student IL skills competency (Dubicki, 2013). The second survey instrument, the Teacher and Librarian Collaboration Survey III, shortened to TLC Survey III (Montiel-Overall & Hernandez, 2012), focused on collaboration between teachers and school librarians in an elementary school setting. The survey (Montiel-Overall & Hernandez, 2012) consisted of 24 questions that measured the importance and frequency of four types of ascending collaboration between teachers and school librarians (coordination, cooperation, integrated instruction, and integrated curriculum). The survey was used as a pre-/post-test instrument to measure levels of collaboration between teachers and school librarians before and after a two-year study of the impact of teacher and librarian collaboration on student achievement (Montiel-Overall & Hernandez, 2012).

The researcher sought and gained approval to use the survey instrument from named researchers from the Dubicki (2013) and Montiel-Overall and Hernandez (2012) studies. Permission was granted by Dubicki to modify the information literacy survey as necessary. The researcher was not able to obtain permission to modify the teacher and librarian collaboration survey (Montiel-Overall & Hernandez, 2012) as the researcher was unable to establish contact with the principal investigator, who had retired. The secondary researcher was not comfortable providing approval to modify the survey instrument because their role in the project (Montiel-Overall & Hernandez, 2012) was supportive and restricted to data analysis. The chair of the

researcher's dissertation committee advised the researcher that it would be acceptable to proceed with adapting the Teacher Librarian Collaboration instrument (Montiel-Overall & Hernandez, 2012) because the two studies were vastly different in scope and population. After completing construction of the merged survey and interview instruments the researcher advanced to the content validation stage.

Content Validation

The researcher constructed a survey that merged the information literacy survey developed by Dubicki (2013) and the Teacher Librarian Collaboration III (TLC III) survey developed by Montiel-Overall and Hernandez (2012). A draft of the merged survey instrument was designed by the researcher. The draft version of the survey consisted of 76 questions: 8 demographic questions, 28 teacher perception questions related to information literacy, and 40 questions about teacher and librarian collaboration. Interview questions for qualitative data collection numbered 36. Content validation was required since the instrument was newly developed and to ensure the survey was measuring what it was supposed to measure. Lynn (1986) identifies two stages of content validity determination: Stage 1 is the Development Stage and State 2 is the Judgment/Quantification Stage. The development stage is generally associated with the creation phase of a new instrument and involves careful attention to crafting an appropriately scoped instrument that is sensitive to the needs of the intended content domain (Lynn, 1986). The judgment stage involves presenting the instrument to at least five subject matter experts for a full evaluation to determine item level and overall content validity (Lynn, 1986). Since the draft instrument resulted from the merger of two existing and published instruments, it was determined that it was acceptable to move to the judgment stage and evaluate the content validity of the instrument. There are two commonly accepted methods for measuring

content validity: 1) content validity index for items (I-CVI) and 2) content validity for index for scales (S-CVI) (Polit & Beck, 2006). The number of expert raters should be no less than five and the score for the I-CVI should be 1.00 with five expert raters, though the score can go as low as .78 with nine raters (Polit & Beck, 2006). An acceptable S-CVI score is .80 (Polit & Beck, 2006). The S-CVI/UA method is commonly used to determine content validity and requires a minimum score of .80 (Shi et al., 2012).

Seven experts were recruited to assess the content validity of the merged instrument. The experts consisted of a university professor and former school administrator, a psychology professor who specializes in qualitative research methods. The experts were asked to assess the content validity of both the survey and interview questions. This created a single opportunity for experts to review and reduced the burden upon them. The minimum I-CVI score required was .83 and the minimum S-CVI score required was .80. The experts were in near universal agreement about the validity of the survey items: 65 items scored a 1.0, 3 items scored 0.857143. The experts were in universal agreement about the validity of the interview questions, all interview items scored at 1.0. Expert analysis generated S-CVI/UA scores of 0.955882 and 1.0 for the survey and interview instruments, respectively. The aggregated mean I-CVI score was 0.995879 and the S-CVI/UA score was 0.971153. The two components of the new instrument, survey and interview questions, passed content validation based on both I-CVI and S-CVI scores.

Comments provided by the experts during their review generated useful information for considering the strength of the instruments and improving upon them. Expert comments regarding the survey instrument included: 1) identification of duplicate questions; 2) opportunities to enhance question clarity; and 3) recognition of double-barreled questions. First,

the reviewers alerted the researcher to a set of eight duplicate questions regarding the teacher librarian collaboration constructs of Cooperation (2 questions) and Integrated Instruction (6 questions). These duplicate questions were removed from the survey. Second, the expert reviewers offered suggestions for improving survey question clarity. One reviewer recommended adding a category of "suburban" to the survey question on school classification (Question 3 on the draft survey). This question was not changed as it was derived from U.S. Census designations for identified population areas, which only recognizes urban/rural categories. Another reviewer commented on the school size question (Question 4) that more than three levels would be helpful. This change was not made. However, the researcher did add three options on the school type question (Question 2), including an Other (open response option) to provide more granularity about this facet of school categorization. The experts also provided valuable input regarding the questions in the Teacher Perceptions section of the survey. The questions were mapped directly to Dubicki's (2013) survey, which are directly connected to facets of information literacy competency skills accepted by the ALA. Given the established nature of the questions, the decision was made to not change any of the questions.

One reviewer recognized Question 37, about the adequacy of their school library's technology and print collection, as a double-barreled question. The researcher split this question into two discrete questions based on this feedback. The experts also submitted beneficial critiques of the interview questions. Responses included statements about the repetitiveness of the interview questions and the possibility of using a demographic questionnaire that could be distributed to interviewees prior to the interviews. The researcher considered these suggestions but opted to keep the interview questions as constructed to preserve the flexibility of the semi-structured interview format. During the review of the instruments the researcher discovered that

the scale used for the Teacher Librarian Collaboration section used a 5-point scale instead of the 4-point scale used by Montiel-Overall and Hernandez (2012). The researcher corrected the scale for deployment in the survey for the pilot study to match the 4-point scale used in the base study (Montiel-Overall & Hernandez, 2012). This concludes the discussion of the content validation of the survey and interview instruments.

Pilot Study

The pilot survey developed by the researcher consisted of 108 questions: 10 demographic questions (of which 9 were used. The "State where you teach" question was removed to avoid confusing pilot participants, who taught outside of the site selected for the final study), 20 questions on teacher perceptions relative to information literacy, 7 questions on teacher perceptions of school libraries and librarians, 50 questions on teacher perceptions of school libraries and librarians (24 two-part, 2 ranking), and a final open response prompt for additional input. Interview questions were also included for review during the pilot phase. The semi-structured interview portion consisted of 36 questions: 10 demographic questions (of which 9 were used. The "State where you teach" question was removed to avoid confusing pilot survey participants), 10 teacher confidence to teach IL competency skills questions, 10 teacher perceptions of student IL skills competency questions, 6 teacher and librarian collaboration questions. The pilot survey was distributed for content validation by seven content area experts. Content validation demonstrated that the instrument was deemed valid. The researcher modified the survey based on information obtained during the content validation phase. The pilot survey included a total of 86 questions: 9 demographic questions, 20 questions on teacher perceptions relative to information literacy, 7 questions on teacher perceptions of school libraries and librarians, 50 questions on collaboration between teachers and librarians (24 two-part, with each

part considered as a discrete question for a total of 48 questions, and 2 ranking), and a final open response prompt for additional input. Detailed descriptions of the pilot survey process, content validation, and the final survey methodology are provided in the following sections.

Participants for the pilot study were recruited using social media posts requesting teachers outside of the study site (Idaho, Montana, Nevada, Utah, Wyoming) and snowball sampling facilitated by professional colleagues working outside of the study site. 17 teachers were recruited to pilot the survey. Two of the pilot study participants self-selected to pilot the interview portion of the study. The pilot study began on October 9, 2023. The pilot study for the survey closed on October 29, 2023. 5 pilot survey participants started the survey but did not answer questions past the first section of the survey. The last completed pilot survey was submitted on October 24, 2023. Pilot study interviews were conducted on at the end of October. Ten of the surveys were complete enough to run reliability testing using Cronbach's Alpha on the five constructs represented in the survey: 1) Importance of IL SKILLS for 11-12 Grade Research Assignments; 2) Teacher Confidence to Teach IL SKILLS; 3) Teacher Perception of Student IL SKILLS; 4) Teacher Librarian Collaboration (TLC) – Frequency; and 5) Teacher Librarian Collaboration (TLC) – Importance.

The construct of 'Importance of IL SKILLS for 11-12 Grade Research Assignments' consisted of five questions. The scale had a low level of consistency, as determined by a Cronbach's alpha of 0.390. Responses to open text opportunities indicate that teachers are not able to engage in class activities that would leverage these specific IL SKILLS and so the importance of the measured IL SKILLS is reduced, even if the questions reliably measure the associated construct. The construct of 'Teacher Confidence to Teach IL SKILLS' consisted of five questions. The scale had a moderate level of consistency, as determined by a Cronbach's

alpha of 0.576. Responses to open text opportunities revealed reasons why teacher responses to the questions in this construct varied enough to produce a moderate Cronbach's alpha: 1) teaching experience; and 2) reported levels of professional development. One teacher, who did not provide responses to the questions in this construct, responded to the open response questions that followed the five questions on teacher confidence: 1) 'If not teaching IL what can help?'; and 2) 'If not teaching IL what barriers exist?' They reported that they had a "lack of knowledge" (barrier) about IL and that "professional development" (help) would help to reduce this barrier to having confidence to teach IL skills. The construct of 'Teacher Perception of Student IL SKILLS' also consisted of five questions. This had an acceptable level of consistency, as determined by a Cronbach's alpha of 0.868. The construct of 'Teacher Librarian Collaboration (TLC) – Frequency' consisted of 24 questions. The scale had a high level of consistency, as determined by a Cronbach's alpha of 0.960. Some negative values were observed in the sections of the construct that measured facets pertaining to higher levels of teacher collaboration. The lower scores were not unexpected. The construct of 'Teacher Librarian Collaboration (TLC) – Importance' consisted of 24 questions. The scale had a high level of consistency, as determined by a Cronbach's alpha of 0.953. Based on this analysis, and the use of a construct based on a set of comprehensible and published standards (Dubicki, 2013), the survey instrument was deemed reliable as determined by the measured Cronbach's alpha scores.

The pilot study also included two participatory pilot interviews with two survey participants who self-selected for interviews: a teacher from Washington State and a teacher from Pennsylvania. The interviews were conducted on October 23 and 24, after the survey closed. The interview participants were similar to the profiles of teachers within the population of the research site, except for the fact that they taught in states outside of the research site. The

decision to interview teachers outside of the research site states of Idaho, Montana, Nevada, Utah, and Wyoming was made intentionally to reduce the introduction of method bias into the main study and to preserve the pool of potential interview subjects for the main study. One of the primary benefits of conducting a pilot study in qualitative research is for the researcher to gain some familiarity with the people being studied (Maxwell, 2012). Another benefit of piloting a qualitative data collection activity such as a semi-structured interview is the experience gained by the researcher about key methodological concerns such as data collection, practice with the interview structure, building an awareness of one's behavior that might introduce bias in interviews, and any ethical concerns that may be hidden during the course of instrument design but are only revealed when put into active use (Knott et al., 2022). A third benefit of piloting a semi-structured interview instrument is to test the robustness of the instrument and its component parts in relation to the underlying research questions (Maxwell, 2012). The researcher realized these benefits by interviewing two teachers, analyzing the results, comparing them against the underlying research questions, and reflecting on the pilot process. Feedback obtained from the interviewees did not reveal any questions or concerns about the interview questions or the protocol used. The researcher determined that the semi-structured interview instrument was fit for use in the final study based on the preceding factors.

Participants and Setting

The researcher selected the sample population of 965 11th and 12th grade teachers at random from a population of approximately 10,000 possible participants across five states in the Mountain West in the United States: Idaho, Montana, Nevada, Utah, and Wyoming. The sample size of 965 was determined based on an estimated population of 10,000 11th and 12th grade teachers meeting the criteria for the study in the five Mountain West states, a confidence level of

95%, and a margin of error of 3%. The researcher used school information from the National Center for Education Statistics (2023), local school district staff rosters to create a spreadsheet in Excel with school districts, charter schools, and private schools from all five states included in the research area. The researcher organized the data for school districts, charter schools, and private schools from each of the five states into individual tabs and assigned a line number to each spreadsheet row containing a district, private, or charter school name. Numbering began at the top of the spreadsheet and continued in sequential order until all lines with entries were numbered. The researcher activated the spreadsheet tab for the first state in alphabetical order (Idaho). The researcher used a random number generator, set to cover the range of entries on the selected spreadsheet (for example,1-162 for Idaho), to produce random numbers. For each number generated, the researcher highlighted the row with that corresponding number. The researcher repeated this process for each tab of the five tabs in the spreadsheet. The researcher continued the process until reaching a representative proportion of potential participants from each of the states to reach the desired aggregate sample size: 154 from Wyoming; 174 from Nevada; 193 from Idaho; 193 from Montana; and 251 from Utah. This process ensured the minimum threshold required to meet the appropriate sample size was met. possibility of balanced representation from each of the states. The researcher committed to maintaining district level integrity. This meant that qualified teachers at all schools in a district, to the extent possible, were invited to participate in the study.

The teachers ranged in age from 21-65 years old and taught in the content areas of English language arts (ELA), mathematics, science, or social studies. The teachers came from a mix of high schools representing urban/rural and charter/private/public that operated in brick-and-mortar locations. The study excluded virtual and online schools from the base sample pool.

The study population included approximately 1,600 qualifying teachers in Wyoming, 1,800 in Nevada, 2,000 in Idaho, 2,000 in Montana, and 2,600 in Utah. In order to qualify for the study, teachers needed to be currently employed by a brick-and-mortar school during the 2023-2024 time of the study and teach classes in the 11th or 12th grade. States in the research area included Idaho, the state in which the researcher resided, and the four states that border Idaho on the east and south. The study did not include the states of Oregon and Washington, states that border Idaho on the west, because they are not a good match based on criteria such as population, economy, and geography. The populations of Oregon and Washington are significantly higher than the five states selected for the study, they have extensive coastlines that impact population concentrations and economic metrics that are substantially different from the interior states of the Mountain West.

Sampling Technique

The researcher used a mix of social media, random sampling, and snowball sampling to recruit participants for the study. Social media postings on Facebook, both on the researcher's personal page and on pages dedicated to qualified teachers in the research site states, and Twitter/X were used to gain access to large numbers of teachers who could self-select to participate in the survey. Snowball sampling was also encouraged in the social media posts. The social media posts were made on Facebook pages of public and private groups of varying membership focused on content area teachers (history, ELA, math, social studies, etc.) and teachers from particular states or regions within the research site. Administrators of private groups were first contacted to inquire about approval to post the call for research study participants. None of the administrators refused to allow the posting of the recruiting messages. However, some social media pages did not allow the researcher to repost or post reminder

messages about the study. The study used a random selection process to begin the recruitment of participants from each of the five states. The random selection process used a balancing process to ensure that proportional representation was sought from each state. The selection balancing process which drew a weighted percentage of participants from each state's potential population of qualifying teachers to assemble a representative sample population from which to create a list of 965 potential participants is described in the preceding section. The researcher selected random samples of potential participants from lists of qualifying teachers actively employed as teachers during the 2023-24 academic year. The researcher extracted names of potential school districts, charter schools, and private schools from the NCES directory for each state.

The researcher then constructed a spreadsheet with five tabs, one for each state, and entered the school district, charter school, and private school names into each line of the spreadsheet as they were listed on the state Department of Education web sites until all the identified schools were listed. The researcher then began with the number 1 in the top left cell on each spreadsheet and continued numbering in sequential order until each populated line was assigned a number. The researcher used a random number generator to select 7 random numbers for each state tab, beginning with Idaho and progressing through the tabs in alphabetical order. The upper threshold of the random number was adjusted to match the total number of entries on each tab. The researcher then visited the websites of the randomly selected school districts/charter schools/private schools to locate school staff directories. High schools were identified on school district sites and on charter/private school sites. The researcher attempted to identify qualified teachers from the public directory information. If a teacher's content area could not be determined from the public directory, the teacher was added to the contact list, with the belief that teachers would choose to take the survey if they believed they met the qualifications.

The original number of randomly selected school sites was seven per state. After identifying 7 school sites, the researcher identified teachers and added their contact information into the spreadsheet. If the minimum sample size was not reached for the state after 7 school sites were harvested, the researcher generated another random number and used that number to pair with a line on the spreadsheet. The teacher identification process was conducted until the minimum number of teachers needed for each state was reached.

Social media sites were also used to allow teachers to self-select for participation in the study. The researcher identified 41 Facebook groups whose names and descriptions indicated they would serve as conduits for reaching qualified teachers. Seventeen of the groups were focused on local areas or states and 33 of the groups were dedicated to content areas. Administrators of nine of the groups did not respond to researcher requests to join. The researcher successfully joined the other 32 groups, which were a mix of public and private. The membership of pages dedicated to localities or states within the research site was 6,389. The aggregate membership of the groups the researcher joined was over 540,000. The researcher could not determine how many members of any of these groups were qualified to participate in the study. The social media groups provided an opportunity to facilitate snowball sampling and reach teachers during times when they might not be checking their work email, such as during holiday breaks.

The study used snowball sampling, a process where a researcher asks participants in a study to identify potential sample participants (Creswell & Guetterman, 2019), to reach the desired minimum number of participants. Recruiting emails and social media posts included a request for recipients to forward the email to qualified teachers to encourage them to participate in the study. The researcher contacted qualified teachers and school librarians by email and

asked them to share the survey with the teachers in their districts. Similarly, the researcher contacted high school principals through a social media group and asked them to share the survey with the teachers in their schools. Finally, the researcher contacted teacher union representatives and state library association representatives via social media and asked them to distribute the recruiting message to their constituents and to share with other qualified parties.

Study recruitment social media posts were posted beginning on November 9, 2023. During this time the researcher continued to reach out to the administrators of identified social media groups for permission to join the group or share the study invitation with group members. The social media recruitment campaign resulted in 27 started surveys and 9 completed surveys, meaning the participants answered the final question on the survey. Recruitment emails were sent beginning on December 1, 2023. Reminder emails were sent beginning on December 15, 2023. The mix of bulk emails using Qualtrics, the researcher's graduate student email account, and social media posts resulted in a rolling reminder schedule.

This process was intended to obtain a sample size of 965 with the capability of reaching a confidence level of 95% with a 3% margin of error. Participants self-selected to participate in the study and received no remuneration to participate in the study. The initial survey recruitment effort resulted in 27 responses total from Idaho, Montana, and Wyoming. Reminder emails and social media posts were released again the weekend before the Christmas holiday, to be close to the time teachers would start their winter breaks. A final set of reminder emails and social media posts were distributed in early January, 2024 to coincide with teacher preparation for and return to work after the winter holiday break. The second snowball sampling attempt resulted in an additional 290 responses. This brought the total number of responses to 163, which resulted in 66

completed surveys. Representation was fairly even across the five states, with the following survey starts by state: Idaho, 27; Montana, 16; Nevada, 17, Utah, 31; Wyoming, 24.

The researcher created a questionnaire with 32 questions for the in-depth interview portion of the study. Survey participants were provided the opportunity to self-select for consideration in the in-depth interview portion of the study by responding to a final question on the survey. Participants who answered the question by selecting the 'No' option were presented with a message that thanked them for their time and informed them of the opportunity to receive one of five (5) $20 egiftcards for participating in the survey and to follow a link to an anonymous Google form to provide an email address of their choice to be entered into the drawing. Participants who answered the question by selecting the 'Yes' option were presented with a message that thanked them for their time and informed them of the opportunity to receive one of five (5) $20 egiftcards for participating in the survey and to follow a link to an anonymous Google form to provide an email address of their choice and provide demographic details to assist the researcher in selecting potential interviewees and be entered into the drawing. The drawing took place after the close of the study.

Potential interview participants were selected using purposeful selection based on geographic location, the state where the teachers reported teaching. Five interview participants, one each from Idaho, Montana, Nevada, Utah, and Wyoming, were successfully recruited using this process. The first participants recruited from Idaho and Wyoming were disqualified during the interview process: The Idaho teacher was disqualified because of a delimiter stated in the researcher's IRB proposal that excluded teachers from the school due to a potential conflict of interest, and the Wyoming teacher was disqualified because the teacher was a teacher-librarian whose current role did not meet study qualifications. Snowball sampling was used to recruit an

interview participant from Idaho. Another Wyoming participant was identified in the post-survey interview interest form, contacted, and agreed to an interview. Participants who indicated interview interest were then contacted to confirm interest and schedule interviews, which were conducted using video conferencing software (Zoom and Google Meet) and transcribed using a dedicated software program (Otter.AI).

The researcher determined the risk level for this online survey study established at less than minimal risk. The Institutional Review Board at Northwest Nazarene University confirmed this determination and approved the study. The survey asked eight demographic questions, which the researcher disaggregated for discrete analysis, and asked no questions of a highly intrusive or sensitive nature. It was possible that the survey instrument could result in mild distress for participants due to the reflective nature of some of the questions or boredom due to the expected time commitment required to complete the survey. The researcher provided their contact information and contact information for their advisor should participants experience distress or have questions or concerns about the study. The researcher included information that advised participants who experienced greater than mild distress to contact their preferred health care provider.

Data Collection

The research model was mixed methods in nature and used an online, anonymous survey delivered over the Internet via the Qualtrics platform for quantitative data collection and in-depth interviews conducted over the Internet using video conferencing software to record the interviews and dedicated transcription software to compile a text record of the conversations for analysis. The researcher requested and was granted approval for this study from the Institutional Review Board at Northwest Nazarene University on June 8, 2023 with revisions approved July

18, 2023. The researcher identified school districts using publicly available directory information and social media groups from which to recruit participants. The researcher sought approval to join the social media groups and gain consent from the group administrators to post a recruitment message on the group pages. The researcher concurrently selected school districts at random from each state and sent emails to high school teachers who were determined to meet study criteria. The researcher posted recruiting messages on social media group pages with a link to the survey (Appendix D) as permission was granted by administrators. The survey was also sent to teachers using Qualtrics and the researcher's institutional email account with a standard recruiting message (Appendix C). The researcher observed a high bounce rate coupled with a low uptake rate for the surveys sent through Qualtrics. Additionally, the researcher discovered that some schools selected for participation used proprietary email systems that required individual messages to teachers. The researcher used a combination of email approaches to send the survey link to teachers along with instructions on how to access the survey and a brief description of the survey. Survey participants provided their informed consent when they accessed the electronic survey (Appendix B). The researcher informed the participants that the data would be confidential and that the data would be used to investigate teacher perceptions on information literacy and their level of collaboration with school librarians. The survey was open from November 9, 2023 to January 10, 2024.

The researcher could not locate an instrument that measures both teacher perception of information literacy and the level of collaboration between teachers and librarians. The researcher crafted a new instrument by merging two existing instruments. The instrument consisted of 86 questions and was developed through a merging of two previously published instruments: an information literacy survey designed by Dubicki (2013), and a teacher librarian

collaboration (TLC) survey created by Montiel-Overall and Hernandez (2012) to measure the level of collaboration between school librarians and teachers. Analysis of the reliability and validity Dubicki's (2013) information literacy survey. The information literacy survey required minimal adaptation prior to use for this study. The survey created by Montiel-Overall required no modification. The final survey consisted of 8 demographic questions, 20 questions about teacher perceptions, and 58 questions on library use and collaboration with school librarians (Appendix A).

The survey consisted of two sections. The first section contained 8 demographic questions and 20 questions about teacher perceptions related to information literacy. There were 2 general questions about teacher perceptions of information literacy as a concept, 5 questions about the importance of information literacy in 11-12 grade research assignments, 1 question about teacher instructional practices regarding information literacy, 1 question about teacher confidence to provide instruction on information literacy, 4 questions on resources and barriers related to the teaching of IL skills, and 7 questions about teacher perceptions of student IL competency. The second section included 58 questions that sought information on library use and librarian collaboration. There were 7 questions about library services at the school where the teachers worked, 48 questions about teacher and librarian collaboration (24 questions with two measurement facets: Frequency of interaction and Importance to student learning), 1 ranking question on collaboration levels with a school librarian, 1 ranking question regarding barriers to collaboration between teachers and librarians, and 1 open response question to allow survey participants to provide additional information.

The survey consisted of 86 total questions and took approximately 20-30 minutes to complete. The first section consisted of 28 questions that covered demographic information and

teacher perspectives and instructional practices regarding information literacy. The section included one multiple option question, an open response question regarding other terms used by survey participants for information literacy, 5 Likert-like questions on teacher perceptions of the importance of IL skills for 11-12 grade research assignments, 1 question with a set of Yes/No subcategories on IL skills and class learning outcomes, 1 question with a set of subcategories on teacher confidence to teach IL skills, 4 open response questions on resources needed and barriers perceived related to teaching IL skills, and 5 Likert-like questions on participant perceptions of the IL skills possessed by their students.

Likert-like questions are questions often consisting of 5 or 7 options that generate interval and ordinal data (Creswell & Guetterman, 2019) that do not consist of a consolidated bank of questions intended to measure different facets of the same topic (Logframer, 2016). Items that use an even-numbered scale (four- or six-point) are also used, with applications that create conditions where surveyors want to create scales that avoid a neutral option (Asún et al., 2016). The first section of the survey contained 13 questions built on a 4-point scale ranging from 1 (Not At All Important) to 4 (Very Important) for Questions 3-7, and 1 (This skill is not part of the stated learning outcomes for my classes) to 4 (Confident) for the subcategories in Question 9, 1 (Poor) to 4 (Excellent) for Questions 14-18, and 1 (Strongly Disagree) to 4 (Strongly Agree) for Questions 19-20. The first section also included a five-point multiple answer question about familiarity with IL with a sixth option for "other." The survey asked participants to respond to six open response questions: 1 about other terms they use for IL, 2 about resources needed to enhance the IL skills teaching of participants, 2 about barriers preventing the teaching of IL skills, and 1 to allow participants to share additional thoughts before the conclusion of the

survey. The survey also included a Yes/No question category regarding the teaching of specific IL skills.

The first section of the survey, which utilized Dubicki's (2013) Information Literacy survey as its core, included 8 demographic questions and 20 questions related to teacher perceptions of information literacy, school libraries, and school librarians. Five of the questions were crafted to obtain data on the importance of IL Skills in terms of research assignments for grades 11 and 12. The other four questions asked participants to think about their confidence level relative to the teaching of information literacy and their perceptions of the information literacy ability of their students. Both of these questions asked participants to rank the five information literacy skills which were presented and explained at the beginning of the survey.

The second section of the survey included 24 questions related to the collaboration between teachers and librarians. This section asked 6 questions about school librarian coordination, 6 questions about cooperation with school librarians, 6 questions about integrated instruction, and 6 questions about integrated curriculum. All the questions used a sliding scale based on 4-point Likert-like scales. Each question consisted of two parts: a section on frequency of activity, with responses that ranged from 1 (Never) to 4 (Most Frequently); and a section on importance to student learning, with responses that ranged from 1 (Not at all important) to 4 (Very important). Participants were asked to select their level of agreement with each of the pairs of 24 questions along a sliding scale response area. This level of measurement was selected instead of a radio button 4-point Likert-like response bank because the original research by Montiel-Overall and Hernandez (2012) opted for a sliding scale response. The use of sliding scale questions allowed for more granularity in responses than a matrix response 4-point Likert-

like survey. The raw scores were collected and analyzed just as integer responses from a 4-point Likert-like matrix survey are collected and analyzed.

During the pilot testing phase, it was confirmed that it took some participants nearly 20 minutes to complete the survey. Due to the length of the survey, the researcher determined that offering a meaningful gesture of thanks to participants was warranted. As a high participation and completion rate was desired by the researcher, the researcher decided to offer the chance of a nominal gift as a gesture of appreciation. Laguilles et al. (2011) found that incentives in the form of a lottery can be an effective means of increasing survey response rates. The researcher offered participants who completed the survey the opportunity to submit the email address of their choice to a separate form that did not receive any information from the research survey for an opportunity to receive one of five $20.00 Visa egiftcards. Participants who responded that they did not have a school librarian with whom to collaborate, and therefore exited the survey after completing about half of the questions, were also offered the opportunity to participate in the drawing for one of the egiftcards.

Delivery

The researcher hosted the survey on the Qualtrics platform, with access provided by Northwest Nazarene University, and made available for completion via the Internet. The survey did not provide a paper and pencil option. Participants took the survey at a time and place of their choosing. The survey collected responses for 60 days. While the individual instruments had been used previously, with published results, and had been found to be valid and internally consistent, the merging of the two instruments presented a novel approach. The researcher pilot tested the merged instrument with 10 teachers from Washington State and Pennsylvania, states not included in the research site for the study. The researcher made minor adjustments to the

wording of some questions based on teacher feedback. The researcher used Cronbach's Alpha check for internal consistency.

Analytical Methods

The researcher used a variety of quantitative and qualitative methods to analyze the data from the results. Analysis of the data was completed using descriptive, non-experimental research methods. Introductory analysis was deployed to determine descriptive statistics such as the mean, standard deviation, and number of cases for each variable. Statistical tests in the form of one-way ANOVA, independent sample t-tests, and MANOVA were all used for analysis of the survey data. Descriptive coding was utilized to identify themes that emerged from the qualitative data.

First, the researcher exported data from Qualtrics into IBM SPSS 28, organized, and prepared the data for processing. A qualified, independent third-party educational professional skilled in data analysis confirmed the readiness of the data for analysis. The researcher used descriptive statistics of the mean, median, and mode to understand the responses to the demographic questions. The researcher utilized correlational analytical techniques to query the survey questions on information literacy and library use, collaboration, and visibility. The researcher used multiple methods to analyze questions from both sections. The researcher deployed several scenarios to analyze relationships between different variables and discover possible significant relationships between factors.

Qualitative data provided by the survey participants to open response question 27, the final question on the survey, was prepared for coding and analysis using both descriptive and Magnitude Coding (Saldaña, 2021). However, due to the low number of responses, coding was limited.

Limitations/Delimitations

  Delimitations of the study include the decision by the research to select the Mountain West region of the United States as the research site. Research on information literacy in general in the United States and internationally is plentiful. The researcher determined to concentrate on the Mountain West region in order to collect information that may be unique to the region. The Mountain West region is a distinct region with specific educational contexts and, as such, the findings of the study may not be generalizable to the United States as whole. Second, the researcher chose to focus on the perceptions of 11th and 12th teachers instead of school librarians. The research on information literacy from the librarian perspective is ample. Research from the teacher perspective is not guaranteed to align with the perspective of school librarians, especially those who are professionally credentialed and who actively engage in the teaching of information literacy skills. The perspective of teachers in this narrow category might not be generalizable to high school teachers in the Mountain West or align with the perspectives of school librarians. Third, the researcher chose to focus on teacher perceptions of student information literacy skills rather than assess the information literacy skills of students directly. Perceptions are highly subjective, and may be misleading, may be influenced by bias, and may fail to capture the full and nuanced set of skills possessed by the object of the perceiver, in this case 11-12 grade students and their information literacy skills competencies. Fourth, the researcher chose to exclude teachers from the school at which the researcher's partner works in order to avoid a conflict of interest. This choice may have prevented a small number of teachers from contributing fully to the study. They could, for example, participate in the anonymous survey due to recruitment through social media messages, but excluded from participation in the interview

portion because their identity would be known and confirmed during the interview recruitment process.

Several limitations associated with this study should be noted. First, there are inconsistencies between the various directory information systems. The presence of proprietary email systems used to contact teachers presented a substantial barrier in recruiting teachers to participate in the survey. Additionally, some schools, both public and private, did not provide a publicly available teacher directory, which made it impossible for the researcher to identify potential study participants. The researcher recommends a harmonized system for managing directory information across the states to facilitate educational research in the Mountain West but acknowledges this is unlikely to happen. there are noticeable differences in the state populations. The populations of the states in the Mountain West, while sharing some similarities, are not homogeneous. There are different levels or urbanization, school funding, and population demographics, for example. Schools in Montana and Wyoming, for instance, have special public school systems on tribal lands that offer unique curricula. This leads to a third limitation, the sizable urban areas in two of the states, Nevada and Utah. Nevada and Utah, for example, have populations heavily concentrated in the large urban areas of Las Vegas and Salt Lake City, respectively. A fourth limitation is the relative newness and lack of wide use for the source survey instruments. This factor is further limited by the merging of the two instruments to create a new survey instrument to meet the needs of this study. While necessary, the merging of two instruments into a unique instrument increased the importance of additional pilot testing. Fifth, the survey did not ask participants to provide their perceptions of the instrument itself. Sixth, the survey measures subjective perceptions instead of objectively measuring actual student information literacy competencies or levels of teacher and librarian collaboration through a

process of evidentiary review. Seventh, the survey instrument relies on accurate and honest

reporting from the survey participants. Eighth, the survey intentionally excluded school

librarians from the study in an effort to counteract the bias toward responses from librarians that

seems to be prevalent in the literature and which the researcher discovered during the process of

conducting the literature review. A review of the annual report, "Library instruction and

information literacy," published regularly since 1973 (Withorn et al., 2019, 2021) is a valuable

resource that supports research and provides exemplary coverage of published research on the

topic of library instruction and information literacy from the perspective of library professionals.

Finally, the survey and interview protocol include questions and additional probes that

may have created a sense of discomfort, especially with questions that asked teachers to consider

their confidence to teach IL Skills, their teaching practices concerning IL Skills, their perceptions

of student IL Skills, their level of collaboration with school librarians, and their perceptions of

barriers related to developing IL Skills and enhanced collaboration between teachers and

librarians. Teachers may have been reluctant to be completely honest in their responses, or their

responses may have been affected by their feelings about their job, students, administration, or

the overall environment surrounding K-12 education. Teachers may also have felt an obligation

to represent their school, colleagues, students, or themselves in more negative or positive

manner, and their motivation for participating in the survey may have been influenced by these

obligations (Field, 2018).

This concludes Chapter 3 on Methodology. Chapter 4 reports on the findings of the study

and moves through the research questions in a sequential manner. Each question is reported in

order and is followed by each sub-question that is related to the main research question for that

category. A summary concludes each section and includes a general overview of the analysis of

the main research question, any sub-questions, and other pertinent or noteworthy observations.

Major findings are summarized at the conclusion of the chapter.

Chapter IV: Results

Introduction

Information literacy skills competency is a critical skillset needed to adapt and thrive in the information economy of the 21st century (Atkinson & Thornton, 2021; Baird & Soares, 2020; Barry et al., 2021; Correll, 2019; Cunningham & Williams, 2018; Farmer & Phamle, 2021; Jones-Jang et al., 2021; Richards, 2021). Educators and policymakers have acknowledged the importance of information literacy since the late 20th century (ALA, 1989; Office of Educational Research and Improvement, 1984; Zurkowski, 1974). School librarians are essential educational professionals in the teaching of IL Skills competency (Farmer & Phamle, 2021; Fontichiaro & Johnston, 2020; Phillips & Lee, 2019). Collaboration between teachers and librarians is a key pedagogical practice that delivers enhanced student learning outcomes (Kammer et al., 2021; Lowe et al., 2020; Wersebe, 2018) and support for the development of IL Skills competency (Merga et al., 2021; Mohamad, 2017).

A review of the literature revealed that collaboration between teachers and librarians is important for enhancing student learning outcomes (Barry et al., 2021; Correll, 2019; Farmer & Phamle, 2021; Saunders et al., 2017). Librarians are information professionals whose expertise helps inform the delivery of effective information literacy skills instruction (Crary, 2019; Montiel-Overall, 2005, 2008, 2009a; Montiel-Overall & Jones, 2011; Phillips & Lee, 2019; Shannon et al., 2019). The literature review further revealed that a social constructivist approach to teaching that involves collaboration between teachers and librarians is an effective theoretical framework for developing information literacy skills competencies (Allen, 2008; Kuhlthau, 1988, 1990, 1993; Marcum, 2002; Swanson, 2006; Thompson & Cronje, 2001). The literature also demonstrated that teachers do not necessarily receive adequate training in the teaching of IL

skills in their preservice education (Al-Qallaf & Aljiran, 2021; Baird & Soares, 2020; Bury, 2011; Dubicki, 2013; Shonfeld et al., 2021; Stebbing et al., 2019). The need for increased collaboration between teachers and librarians is needed for success in life after secondary school, both in educational pursuits and life in general (Correll, 2019; Jones-Jang et al., 2021). The literature also demonstrated that collaboration between teachers and librarians to provide IL skills instruction is hampered by barriers such as a lack of roles and responsibilities (Hargreaves, 2019; Kammer et al., 2021; Lowe et al., 2020; Mertes, 2014; Montiel-Overall, 2008; Stewart & Deans, 2020), limited time (Kammer et al., 2021; McKeever et al., 2017; Mertes, 2014), and funding and opportunities for training on how to collaborate effectively (Montiel-Overall, 2008; Montiel-Overall & Hernandez, 2012; Stewart & Deans, 2020).

The purpose of this study was to investigate the development of IL skills competencies in 11th and 12th grade students in the Mountain West states of Idaho, Montana, Nevada, Utah, and Wyoming from the teacher perspective and aspects of teacher and librarian collaboration in order to provide information that can aid school administrators, boards, and district leaders in developing practices and policies that provide for enhanced student IL skills competencies through increased collaboration between teachers and school librarians. Information literacy is a critical skill for which competency is needed to be a successful member of society in the information economy of the 21st century. Assuring that teachers have the opportunity to collaborate with school librarians in developing crucial IL skills competencies in students is essential to fulfilling the educational missions of secondary schools and preparing students to be successful participants in school, work, and life. The results produced by this study are presented in alignment with the following research questions:

RQ1: Is there a significant relationship between teacher perceptions of student information literacy competency skills and teacher content area, school classification, school size, and

librarian credentials?

H01: There is no relationship between teacher perceptions of student information literacy
competency skills and teacher content area, school classification, school size, and
librarian credentials.

RQ2: Is there a significant relationship between teacher and librarian collaboration levels and
teacher content area, school classification, school size, and librarian credentials?

H02: There is no relationship between teacher and librarian collaboration levels and teacher
content area, school classification, school size, and librarian credentials.

RQ3: What is the reported experience of collaboration between high school teachers and
school librarians from the teacher perspective?

The results are presented in three sections. Section 1 includes descriptive data and results
relating to research question 1. Section 2 includes descriptive data and results relating to research
question 2. Section 3 provides an exploration of qualitative data from the survey and from in-
depth interviews the researcher conducted with 5 survey participants who volunteered for the
interview phase.

This mixed methods study used Dubicki's (2013) information literacy survey, Montiel-
Overall and Hernandez's (2012) Teacher Librarian Collaboration survey, as well as researcher
developed questions to survey 11-12 grade teachers in the Mountain West regarding their
perceptions of the information literacy competency skills possessed by their students and the
level of collaboration the teachers had with school librarians. Follow-up interviews were used to
gain additional detailed information regarding teacher perceptions of student information literacy
competency skills and factors associated with collaboration between teachers and librarians. The
survey utilized in this study resulted in 163 responses from teachers in the Mountain West states
of Idaho, Montana, Nevada, Utah, and Wyoming. Of those, 115 were usable. The other

responses were unusable because they were too incomplete to generate usable data for any of the underlying constructs or because the respondents did not meet the criteria for the study (i.e., did not teach 11-12 grade, not certified, school librarian).

Section 1: Descriptive Data and Research Question 1

The participants in the study represented each of the five states specified in the research site. Participants from Utah represented the largest state group (n = 30, 26.5%) and Montana the smallest state group (n = 16, 14.2%). The vast majority of participants were from public high schools (84.1%). The participants in the study were more heavily represented by teachers from rural schools (54%) than urban schools, based on definitions provided by the U.S. Census Bureau (2022). A majority (57.5%) of survey respondents represented large schools, those with a student population of over 1,000. A substantial number of participants indicated their primary teaching discipline was English Language Arts (ELA) (30.1%). The second largest category within Primary Teaching Discipline was Other (25.7%). Responses in the Other category included Art, Career and Technical Education (CTE), Music, and Special Education, among other teaching disciplines. Representation across the grade levels measured (Grade 12, Grade 11, Grade 11 and 12) showed a higher rate of respondents (38.1%) indicating they taught just Grade 12. The number of years taught represented by the respondents showed that 16+ year was the largest group (43.4%). The majority of survey participants (69%) indicated their highest level of education was a Master's degree. The demographic factors of the 113 respondents are listed in Table 1.

Table 1

Participant Demographic Data (n=113)

	Frequency	Percent (%)
State Where Teach		
Idaho	26	23.00%
Montana	16	14.20%
Nevada	17	15.00%
Utah	30	26.50%
Wyoming	22	19.50%
Not Reported	2	1.80%
School Type		
Public high school	95	84.1%
Private high school	3	2.7%
Public charter high school	2	1.8%
Alternative high school	1	0.9%
Public K-12 school	10	8.8%
Not Reported	2	1.8%
School Classification		
Urban	52	46.0%
Rural	61	54.0%
School Size		
Small (500 or fewer)	27	23.9%
Medium (500 to 1,000)	20	17.7%
Large (Over 1,000)	65	57.5%
Not Reported	1	0.9%
Primary Teaching Discipline		
ELA	34	30.1%
AP ELA	1	0.9%
History	18	15.9%
AP History	1	0.9%
Life Sciences	3	2.7%
AP Life Sciences	1	0.9%
Physical Sciences	5	4.4%
Mathematics	8	7.1%

	Frequency	Percent (%)
Primary Teaching Discipline		
AP Mathematics	3	2.7%
Humanities	9	8.0%
Other	29	25.7%
Not Reported	1	0.9%
Grade Level Taught		
Grade 12	43	38.1%
Grade 11	30	26.5%
Grade 11 and 12	37	32.7%
Not Reported	3	2.7%
Years Taught		
1-5	26	23.0%
6-15	36	31.9%
16+	49	43.4%
Not Reported	2	1.8%
Highest Degree Completed		
Bachelors	28	24.8%
Masters	78	69.0%
Specialist	3	2.7%
Doctorate	2	1.8%
Other	2	1.8%

Table 2 provides demographic details about the follow-up interview participants. Most (4 of 5) participants were female. Four of the participants held a Master's degree and three had more than 20 years of teaching experience. All but one of the participants worked at a school classified as large. The interview participants represented five different primary teaching disciplines (content areas). Additionally, the participants represented each state in the research site. Interview participant demographic information is presented in Table 2.

Table 2

Interview Participant Demographic Data (n = 5)

Participant	Gender	Grade level	Teacher content area	Education level	Years teaching	School classification	School size
Maggie	Female	11-12	AP History	MA	24	Rural	Large
Daryl	Male	11-12	Physical Science	MA (2)	34	Urban	Large
Tara	Female	11-12	Math	BA	5	Rural	Small
Carol	Female	11	ELA	MA	22	Rural	Large
Lori	Female	11-12	Art	MA	15	Urban	Large

Collecting information about teacher perceptions of the IL skills possessed by their students, teacher perceptions of library services available at their school, and the level of collaboration between teachers and librarians is important to informing the school leaders who develop and deploy policies and practices that provide the learning environments that support the teaching of IL skills competency. This study investigated the general perceptions of teachers regarding the teaching of IL skills, school libraries, the IL skills competency of their students, and frequency and importance of collaboration with librarians, while also delving into the barriers and needs of teachers related to the teaching of IL skills competencies.

Results for Research Question 1: Is there a significant relationship between teacher perceptions of student information literacy skills and teacher content area, school classification, school size, and librarian credentials?

Research Question 1 was investigated by analyzing quantitative results from responses to the survey instrument used for this study. This data was analyzed using MANOVA. The categorical variables of primary teaching discipline (teacher content area), school classification, school size, and librarian credentials (library staffing) were the independent variables and

Student IL Skills, measured for five levels, composed the five dependent variables. A MANOVA

test was utilized for each of the categorical independent variables against the five measurements

of teacher perceptions of Student IL Skills: IDs and Addresses Information Need; Accesses

Information Effectively and Efficiently; Evaluates and Thinks Critically About Information;

Uses Information Effectively for a Specific Purpose; and Uses Information Ethically and

Legally. The details of each MANOVA are discussed for each of the categorical independent

variables below in order, beginning with Primary Teaching Discipline. The original case

processing summary for the Primary Teaching Discipline group consisted of eight subgroups.

The subgroup sizes for four of the subgroups were smaller than the minimum of five required to

apply a MANOVA for Student IL Skills, which consisted of five variables. The original case

processing summary for Primary Teaching Discipline is displayed in Table 3.

Table 3

Original Primary Teaching Discipline Categories
(n = 74)

	f	%
ELA	26	35.1%
Other	16	21.6%
History	14	18.9%
Physical Sciences	5	6.8%
Mathematics	4	5.4%
Humanities	4	5.4%
AP Mathematics	3	4.1%
Life Sciences	2	2.7%

The original subgroups were analyzed for similarities and then collapsed into larger

groups of associated categories. ELA and Other remained in discrete subgroups. Mathematics,

AP Mathematics, Life Sciences, and Physical Sciences were collapsed into the Math/Science

subgroup. History and Humanities were collapsed into the Humanities subgroup. The collapsed

subgroups were determined to be properly associated at the construct level and the sizes of the

subgroups were sufficient to meet the requirements for MANOVA as shown in Table 4.

Table 4

Collapsed Primary Teaching Discipline
Categories (n = 74)

	f	%
ELA	26	35.1%
Humanities	18	24.3%
Other	16	21.6%
Math/Science	14	18.9%

The sample was larger than 50, so Normal Q-Q plots were used to assess normality.

Evaluation of normality conducted using Normal Q-Q plots showed the data for all four

categories were normally distributed (Appendix F). Outliers were detected in several instances

by observation of box plots (Appendix G). Since the outliers were in Likert-scale variables that

ranged from 1-4 it was determined to keep all outliers and continue with analysis.

Collinearity was tested using Pearson's Correlation. Moderate correlation levels on

Pearson's *r* were observed for all four facets of the Student IL Skills construct, which indicated a

good fit for MANOVA (Laerd Statistics, 2024). There were no multivariate outliers in the data,

as assessed by Mahalanobis distance ($p > .001$). Levels for the five groups of the dependent

variable ranging from 1.00 to 4.00 on a 4-point Likert scale measuring the Student IL SKILLS

construct were: Poor (1), Satisfactory (2), Good (3), and Excellent (4). There was homogeneity

of variances for the dependent variables when assessed by Levene's test for equality of

variances. There were mixed results when assessing linear relationships between the five Student

IL Skills factors in each primary teaching discipline, as assessed by scatterplot (Appendix H). It

was determined to run the analysis and except the loss of power. Individual scores for each MANOVA are reported below for each of the categorical independent variables.

Primary Teaching Discipline

A MANOVA was processed for Primary Teaching Discipline. There were 74 responses for this variable across the five dependent variables. There was homogeneity of variances as assessed by Levene's test for equality of variances (IDs and Addresses Info Need, $p = .916$; Accesses Info Effectively and Efficiently, $p = .865$; Evals and Thinks Critically About Info, $p = .378$; Uses Info Effectively for a Spec Purpose, $p = .052$, and Uses Info Ethically and Legally, $p = .746$). Teacher perceptions of Student IL Competency Skills based on primary teaching discipline across the five dependent variables in the category were normally distributed, as assessed by normal Q-Q plots (Appendix F). There were outliers, as assessed by box plot (Appendix G), but their impact was deemed negligible because they occurred on 4-point Likert scale items. Data are mean ± standard deviation, unless otherwise stated. There were 74 total responses to the teacher ratings of Student IL Skills based on Primary Teaching Discipline. Humanities teachers rated the Student IL Skills higher on four levels (IDs and Addresses Info Need = 2.444 ± .170, Accesses Info Effectively and Efficiently = 2.444 ± .167, Evals and Thinks Critically About Info = 2.556 ± .175, Uses Info Effectively for a Specific Purpose = 2.5 ± .186) than teachers in the other primary disciplines. Math/Science teachers provided the lowest ratings of Student IL Skills (Evals and Thinks Critically About Info = 1.714 ± .198, and Uses Info Effectively for a Specific Purpose = 1.714 ± .211). Table 5 provides additional results of the MANOVA.

Table 5

Primary Teaching Discipline – Student IL SKILLS

Dependent Variable	Primary Teaching Discipline	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Student IL SKILLS - IDs and Addresses Info Need	ELA	2.423	0.142	2.140	2.706
	Humanities	2.444	0.170	2.105	2.784
	Math/Science	2.000	0.193	1.615	2.385
	Other	2.125	0.181	1.765	2.485
Student IL SKILLS - Accesses Info Effectively & Efficiently	ELA	2.154	0.139	1.877	2.431
	Humanities	2.444	0.167	2.111	2.777
	Math/Science	2.214	0.189	1.837	2.592
	Other	2.063	0.177	1.709	2.416
Student IL SKILLS - Evals and Thinks Critically About Info	ELA	2.154	0.145	1.864	2.444
	Humanities	2.556	0.175	2.207	2.904
	Math/Science	1.714	0.198	1.319	2.109
	Other	1.875	0.185	1.506	2.244
Student IL SKILLS - Uses Info Effectively for a Spec Purpose	ELA	2.385	0.155	2.076	2.693
	Humanities	2.500	0.186	2.129	2.871
	Math/Science	1.714	0.211	1.294	2.135
	Other	2.000	0.197	1.607	2.393
Student IL SKILLS - Uses Info Ethically & Legally	ELA	2.423	0.152	2.120	2.726
	Humanities	2.111	0.183	1.747	2.475
	Math/Science	2.071	0.207	1.659	2.484
	Other	1.938	0.194	1.551	2.324

There was a statistically significant difference observed in the Primary Teaching Discipline groups for Student IL Skills $F(15, 182.598) = 1.912$, $p = .024$, Wilks' $\Lambda = .669$, partial $\eta^2 = .126$ with an Observed Power = .914. Post hoc comparisons using the Bonferroni correction indicated that the mean score for Evaluates and Thinks Critically About Information assigned by Humanities teachers ($2.56 \pm .511$) was statistically different from the mean score assigned by Math/Science teachers ($1.71 \pm .914$) as was the mean score for Uses Information Effectively for a Specific Purpose (Humanities = $2.50 \pm .618$, Math/Science = $1.71 \pm .914$).

School Classification

A MANOVA was utilized to test for the IV School Classification in relation to the DV of Student IL Skills (measured on five levels). There were two groups in the categorical IV (Urban = 1, Rural = 2). There were 75 participants in this group: 38 Urban and 37 Rural. There was homogeneity of variances as assessed by Levene's test for equality of variances for four of the DVs (IDs and Addresses Info Need, $p = .093$; Accesses Info Effectively and Efficiently, $p = .838$; Evals and Thinks Critically About Info, $p = .851$; Uses Info Effectively for a Spec Purpose, $p = .755$), while one DV indicated a violation of Levene's test for equality of variances (and Uses Info Ethically and Legally, $p = .010$). Box's M reported a not significant value ($p = .540$). It was determined that the Box's M multivariate test was appropriate for confirming the homogeneity of the variances within the data.

Teacher perceptions of Student IL Competency Skills based on school classification of urban or rural, across the five dependent variables in the category were normally distributed, as assessed by normal Q-Q plots (Appendix F). There were outliers for one DV (Uses Information Ethically and Legally for the Rural group), as assessed by box plot (Appendix G), but their impact was deemed negligible because they occurred on 4-point Likert scale items. Data are mean ± standard deviation, unless otherwise stated. There were 75 total responses to the teacher ratings of Student IL Skills based on School Classification. Teachers from urban schools rated the Student IL Skills higher on three levels (IDs and Addresses Info Need = 2.34 ± .781, Uses Info Effectively for a Specific Purpose = 2.5 ± .186, and Uses Information Ethically and Legally = 2.24 ± .852) than teachers in rural schools. The ratings for the other two Student IL Skills were effectively equal (Accesses Info Effectively and Efficiently: Urban = 2.21 ± .704, Rural = 2.22 ± .712, and Evals and Thinks Critically About Info: Urban = 2.11 ± .764, and Rural = 2.11 ± .809).

There was not a statistically significant difference observed in the School Classification groups

for Student IL Skills $F(5, 69) = .447$, $p = .814$, Wilks' $\Lambda = .969$, partial $\eta^2 = .031$ with an

Observed Power $= .161$. Table 6 provides additional descriptive information.

Table 6

School Classification – Student IL SKILLS

Dependent Variable	School Classification	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Student IL SKILLS - IDs and Addresses Info Need	Urban	2.342	0.118	2.106	2.578
	Rural	2.216	0.120	1.977	2.455
Student IL SKILLS - Accesses Info Effectively & Efficiently	Urban	2.211	0.115	1.982	2.439
	Rural	2.216	0.116	1.984	2.448
Student IL SKILLS - Evals and Thinks Critically About Info	Urban	2.105	0.128	1.851	2.360
	Rural	2.108	0.129	1.850	2.366
Student IL SKILLS - Uses Info Effectively for a Spec Purpose	Urban	2.289	0.134	2.022	2.557
	Rural	2.135	0.136	1.864	2.407
Student IL SKILLS - Uses Info Ethically & Legally	Urban	2.237	0.127	1.985	2.489
	Rural	2.108	0.128	1.852	2.364

School Size

A MANOVA was utilized to test for the IV School Size in relation to the DV of Student

IL Skills (measured on five levels). There were three groups in the categorical IV: Small (500 or

fewer students), $n = 18$; Medium (500 to 1,000 students), $n = 13$; and Large (over 1,000

students), $n = 44$. There were 75 participants in the School Size variable. There was

homogeneity of variances as assessed by Levene's test for equality of variances (IDs and

Addresses Info Need, $p = .899$; Accesses Info Effectively and Efficiently, $p = .702$; Evals and

Thinks Critically About Info, $p = .422$; Uses Info Effectively for a Spec Purpose, $p = .582$, Uses Info Ethically and Legally, $p = .474$). Box's M reported a not significant value ($p = .571$).

Teacher perceptions of Student IL Competency Skills based on school size of small/medium/large across the five dependent variables in the category were normally distributed, as assessed by normal Q-Q plots (Appendix F). Outliers were observed for three DV as assessed by box plot (Appendix G), but their impact was deemed negligible because they occurred on 4-point Likert scale items. Data are mean ± standard deviation, unless otherwise stated. There were 75 total responses to the teacher ratings of Student IL Skills based on School Size. Teachers from medium-sized schools (500-1,000 students) rated the Student IL Skills higher on all five levels (IDs and Addresses Info Need = 2.46 ± .776, Accesses Info Effectively and Efficiently = 2.31 ± .751, Evals and Thinks Critically About Info = 2.31 ± .855, Uses Info Effectively for a Specific Purpose = 2.46 ± .877, and Uses Information Ethically and Legally = 2.23 ± .725) than teachers in small or large schools. Teachers at small schools (500 or fewer students) provided the lowest ratings on the Student IL Skills on four of the five levels (Accesses Info Effectively and Efficiently = 2.00 ± .840, Evals and Thinks Critically About Info = 2.06 ± .873, Uses Info Effectively for a Specific Purpose = 2.06 ± .873, and Uses Information Ethically and Legally = 2.11 ± .963). It should be noted that teachers from large schools (1,000 or more students) rated the Student IL Skills for Evals and Thinks Critically About Info slightly higher than teachers from small schools (2.07 ± .728). There was not a statistically significant difference observed in the School Size groups for Student IL Skills $F(10, 136) = .749$, $p = .678$, Wilks' $\Lambda = .898$, partial $\eta^2 = .052$ with an Observed Power = .380. Table 7 provides additional descriptive information.

Table 7

School Size – Student IL SKILLS

Dependent Variable	School Size	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Student IL SKILLS - IDs and Addresses Info Need	Small (500 or fewer)	2.278	0.173	1.934	2.622
	Medium (500 to 1,000)	2.462	0.203	2.057	2.866
	Large (Over 1,000)	2.227	0.110	2.007	2.447
Student IL SKILLS - Accesses Info Effectively & Efficiently	Small (500 or fewer)	2.000	0.165	1.670	2.330
	Medium (500 to 1,000)	2.308	0.195	1.919	2.696
	Large (Over 1,000)	2.273	0.106	2.062	2.484
Student IL SKILLS - Evals and Thinks Critically About Info	Small (500 or fewer)	2.056	0.185	1.686	2.425
	Medium (500 to 1,000)	2.308	0.218	1.873	2.742
	Large (Over 1,000)	2.068	0.119	1.832	2.304
Student IL SKILLS - Uses Info Effectively for a Spec Purpose	Small (500 or fewer)	2.056	0.195	1.667	2.444
	Medium (500 to 1,000)	2.462	0.230	2.004	2.919
	Large (Over 1,000)	2.205	0.125	1.956	2.453
Student IL SKILLS - Uses Info Ethically & Legally	Small (500 or fewer)	2.111	0.186	1.741	2.481
	Medium (500 to 1,000)	2.231	0.218	1.795	2.666
	Large (Over 1,000)	2.182	0.119	1.945	2.418

Librarian Credentials

A MANOVA was utilized to test for the IV Librarian Credentials/Library Staffing in relation to the DV of Student IL Skills (measured on five levels). There were five groups in the survey item for library staffing: Volunteer; PT, Non-Cert, No IL Skills Support; PR, Cert, Limited IL Skills Support; FT, Non-Cert, Limited IL Skills Support; FT, Cert, IL Skills Support). The five groups presented an issue with running MANOVA due to insufficient group membership for the Volunteer ($n = 3$) and PT, Cert, Limited IL Skills Support ($n = 3$) groups, as

the required minimum is 5 based on the number of variables in the DV for Student IL Skills. The

researcher analyzed the groups in the library staffing IV and decided to collapse the five groups

into two groups based on credentials, in response to the research question. The librarian

credentials variable was collapsed into two groups: Not Certified, which consisted of

Volunteer/PT, Non-Cert, No IL Skills Support/FT, Non-Cert, Limited IL Skills Support ($n = 22$)

and Certified, which consisted of PT, Cert, Limited IL Skills Support/FT, Cert, IL Skills Support

($n = 53$). There were 75 participants in the librarian credentials IV. There was homogeneity of

variances as assessed by Levene's test for equality of variances (IDs and Addresses Info Need, p

$= .503$; Accesses Info Effectively and Efficiently, $p = .777$; Evals and Thinks Critically About

Info, $p = .062$; Uses Info Effectively for a Spec Purpose, $p = .334$, Uses Info Ethically and

Legally, $p = .598$). Box's M reported a not significant value ($p = .308$).

Teacher perceptions of Student IL Competency Skills based on library staffing across the

five dependent variables in the category were normally distributed, as assessed by normal Q-Q

plots (Appendix F). Outliers were observed in the Not Certified group as assessed by box plot

(Appendix G), but their impact was deemed negligible because they occurred on 4-point Likert

scale items. Data are mean ± standard deviation, unless otherwise stated. There were 75 total

responses to the teacher ratings of Student IL Skills based on librarian credentials. Teachers from

the Certified group rated the Student IL Skills higher on three levels (IDs and Addresses Info

Need $= 2.30 ± .749$, Accesses Info Effectively and Efficiently $= 2.25 ± .705$, Evals and Thinks

Critically About Info $= 2.15 ± .818$) than teachers at schools with non-credentialed librarians.

Teachers who reported their librarian as Not Certified provided the higher ratings on the Student

IL Skills on two of the five levels (Uses Info Effectively for a Specific Purpose $= 2.23 ± .922$,

and Uses Information Ethically and Legally $= 2.23 ± .813$). There was not a statistically

significant difference observed in the librarian credentials groups for Student IL Skills $F(5, 69) =$ .540, $p = .745$, Wilks' $\Lambda = .962$, partial $\eta^2 = .038$ with an Observed Power $= .189$. Table 8 provides additional descriptive information.

Table 8

Librarian Certification – Student IL SKILLS

Dependent Variable	Librarian Certification	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Student IL SKILLS - IDs and Addresses Info Need	Not Certified	2.227	0.156	1.917	2.538
	Certified	2.302	0.100	2.102	2.502
Student IL SKILLS - Accesses Info Effectively & Efficiently	Not Certified	2.136	0.151	1.836	2.436
	Certified	2.245	0.097	2.052	2.439
Student IL SKILLS - Evals and Thinks Critically About Info	Not Certified	2.000	0.167	1.667	2.333
	Certified	2.151	0.108	1.937	2.365
Student IL SKILLS - Uses Info Effectively for a Spec Purpose	Not Certified	2.227	0.177	1.874	2.581
	Certified	2.208	0.114	1.980	2.435
Student IL SKILLS - Uses Info Ethically & Legally	Not Certified	2.227	0.167	1.895	2.560
	Certified	2.151	0.107	1.937	2.365

A statistically significant relationship was found between teacher perceptions of Student IL Skills competency levels and teacher content area (primary teaching discipline). A statistically significant relationship was not found between teacher perceptions of Student IL Skills competency levels and school classification, school size, and librarian credentials. We must reject the hypothesis and accept the null hypothesis.

Another important factor to consider in investigating teacher perceptions of Student IL Skills Competency is the level of collaboration with librarians as reported by teachers.

Section 2: Research Question 2

Results for Research Question 2: Is there a significant relationship between teacher and librarian collaboration levels and teacher content area, school classification, school size, and librarian credentials?

Research Question 2 was investigated by analyzing quantitative results from responses to the survey instrument used for this study. The categorical variables of Primary Teaching Discipline (teacher content area), School Classification, School Size, and Librarian Credentials (library staffing) were the independent variables and Teacher Librarian Collaboration (TLC), measured on four facets, composed the four dependent variables. The data were analyzed using MANOVA. A MANOVA test was used for each of the independent variables with the dependent TLC facets: Coordination; Collaboration; Integrated Instruction; and Integrated Curriculum. Each facet of the TLC construct was composed of six sub-facets that are analogous between facets (the first item in Coordination is analogous to the first item in Collaboration, Integrated Instruction, and Integrated Curriculum). A composite score was created for each top-level facet using the transform function in SPSS. Lower composite scores indicated a lower level of collaboration between teachers and librarians. Higher composite scores indicated a higher level of collaboration between teachers and librarians. Levels for the four groups of the dependent variable were measured on a composite score ranging from 6.00 to 24.00. A composite score of 6.00 indicates ratings of 1.00 (Never) for each of the six subfacets of a given TLC facet and a composite score of 24.00 indicates ratings of 4.00 for each of the six subfacets of a given TLC facet as reported in Table 9.

Table 9

TLC Rating Articulation Table

TLC Facets and Subfacets	Base Scale	Composite Score (Base score x 6)
TLC – Coordination		
Talking with the librarian to arrange time periods for students to use the library.	1-4	
Scheduling time for the librarian to work with students in the library.	1-4	
Setting up a time with the librarian when groups of students can go to the library for free reading.	1-4	6 - 24
Making sure that class library times don't conflict with times when other classes use the library.	1-4	
Scheduling events (e.g., games, workshops) in the library for students with the librarian.	1-4	
Setting up convenient times to use the library for extracurricular activities (e.g., clubs).	1-4	
TLC – Cooperation		
Identifying with the librarian materials (e.g., books, websites, references) needed for teaching IL SKILLs.	1-4	
Asking the librarian to provide a list of library resources needed to teach a lesson on IL SKILLs.	1-4	
Dividing responsibilities for a lesson (e.g., the teacher will teach a lesson using resources provided by the librarian) to teach IL SKILLs.	1-4	6 - 24
Talking with the librarian about new library resources available for instruction to teach IL SKILLs.	1-4	
Asking the librarian to provide references that can be used by students to learn IL SKILLs.	1-4	
Spending time with the librarian identifying library resources that are helpful in teaching IL SKILLs.	1-4	
TLC - Integrated Instruction		
Meeting with the librarian to plan objectives for a lesson to teach IL SKILLs.	1-4	
Sharing ideas with the librarian for teaching a lesson together on IL SKILLs.	1-4	6 - 24
Working with the librarian to discuss a lesson that will be jointly taught about IL SKILLs.	1-4	

TLC Rating Articulation Table

TLC Facets and Subfacets	Base Scale	Composite Score (Base score x 6)
TLC - Integrated Instruction		
Spending time with the librarian planning instructional activities in the library about IL SKILLs.	1-4	
Working with the librarian to incorporate library skills into classroom lessons about IL SKILLs.	1-4	6 - 24
Talking to the librarian about how well students understand what they are learning about IL SKILLs.	1-4	
TLC - Integrated Curriculum		
Planning lessons with the librarian to teach IL SKILLs.	1-4	
Developing objectives for instruction with the librarian to teach IL SKILLs.	1-4	
Teaching together with the librarian (e.g., implementing lessons that integrate the academic curriculum such as science and social studies with library instruction) to teach IL SKILLs.	1-4	6 - 24
Participating in curriculum planning with the librarian to integrate library instruction into classroom curriculum to teach IL SKILLs.	1-4	
Assessing student IL SKILL progress with the librarian.	1-4	
Discussing with the librarian how well students understand what they are learning about IL SKILLs.	1-4	

Teacher reported collaboration with librarians at the four variables related to teacher and librarian collaboration were subjected to a post hoc test in the form of Bonferroni correction. The number of respondents was 27 and the data were composite scores generated from 4-point Likert-scale responses for the dependent variables and categorical independent variables. Normal Q-Q plots were used to assess normality. Evaluation of normality conducted using Normal Q-Q plots showed the data for all four categories were normally distributed (Appendix F). Several outliers were detected by observation of box plots (Appendix G). The decision was made to keep the outliers because of the amplification of the primary four-level Likert-scale

provided by the creation of the composite scores. Collinearity was assessed by Pearson's

correlation, which detected moderate collinearity for three of the TLC facets and possibly strong

collinearity between the facets of Integrated Instruction and Integrated Curriculum. The

researcher determined to continue with MANOVA since the purpose of the study was to

investigate possible relationships, not establish robust predictions. The details of each

MANOVA are discussed for each independent variable below in order, beginning with Primary

Teaching Discipline.

Levels for the four questions of the dependent variable were constructed on a 4-point

Likert scale measuring the TLC construct were: Never (1), Occasionally (2), Frequently (3), and

Most Frequently (4). The 4-point Likert scale served as the base from which the composite

scores ranging from 6.00 to 24.00 were created through transformation. There were no

multivariate outliers in the data, as assessed by Mahalanobis distance ($p > .001$). There was

homogeneity of variances for the dependent variables when assessed by Levene's test for

equality of variances. Linear relationships between the four TLC facets across each group of the

independent variables were observed as assessed by scatterplot (Appendix H). Individual scores

for each MANOVA are reported below for each of the categorical independent variables. Data

are presented as mean ± standard deviation unless otherwise noted.

Primary Teaching Discipline

A MANOVA was processed for Primary Teaching Discipline. Preliminary analysis

revealed that there was an insufficient number of group members in the Math/Science group used

for the MANOVA to analyze Student IL Skills in RQ1. There were 3 members in that group and

MANOVA required a minimum of 4 members. The researcher determined to group the

Math/Science and Other categories together into a new 'Other' group because the members came

from teaching disciplines that traditionally have less interaction with school librarians than ELA or Humanities teachers. This created three groups with a total of 26 responses: ELA ($n = 14$), Humanities ($n = 5$), Other ($n = 7$). There was homogeneity of variances as assessed by Levene's test for equality of variances (TLC_Coor_CompScore, $p = .696$; TLC_Coop_CompScore, $p = .437$; TLC_IntInst_CompScore, $p = .175$; TLC_IntCurr_CompScore, $p = .180$). Teacher librarian collaboration based on primary teaching discipline across the four dependent variables in the category were normally distributed, as assessed by normal Q-Q plots (Appendix F). There were two outliers, as assessed by box plot (Appendix G), but their impact was deemed negligible because of the survey scale and their importance for analysis high because of the small participant size. Data are mean ± standard deviation, unless otherwise stated. ELA teachers rated their levels of Teacher Librarian Collaboration higher on all four levels (TLC_Coor_CompScore = 14.500 ± 6.322, TLC_Coop_CompScore = 15.857 ± 6.893, TLC_IntInst_CompScore = 14.429 ± 6.548, TLC_IntCurr_CompScore = 14.286 ± 6.157) than teachers in the other primary disciplines. Teachers in the Other group provided the lowest ratings of Teacher Librarian Collaboration (TLC_IntInst_CompScore = 8.286 ± 3.251, TLC_IntCurr_CompScore = 8.143 ± 3.078). Mean scores for Primary Teaching Discipline were TLC_Coor_CompScore = 13.423 ± 5.812, TLC_Coop_CompScore = 13.577 ± 6.432, TLC_IntInst_CompScore = 12.00 ± 6.197, TLC_IntCurr_CompScore = 11.885 ± 6.062. Table 10 provides results of the MANOVA.

Table 10

Primary Teaching Discipline - Teacher Librarian Collaboration

Dependent Variable	Primary Teaching Discipline	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
	ELA	14.500	1.537	11.319	17.681
	Humanities	9.800	2.573	4.478	15.122
TLC_Coor_CompScore	Other	13.857	2.174	9.359	18.355
	ELA	15.857	1.621	12.504	19.211
	Humanities	12.800	2.713	7.188	18.412
TLC_Coop_CompScore	Other	9.571	2.293	4.829	14.314
	ELA	14.429	1.544	11.234	17.623
	Humanities	10.400	2.584	5.054	15.746
TLC_IntInst_CompScore	Other	8.286	2.184	3.767	12.804
	ELA	14.286	1.505	11.173	17.398
	Humanities	10.400	2.518	5.192	15.608
TLC_IntCurr_CompScore	Other	8.143	2.128	3.741	12.544

There was a statistically significant difference between the TLC composite scores for teachers based on primary teaching discipline $F(8.00, 40.00) = 3.026$, $p = .009$, Wilks' $\Lambda = .388$, partial $\eta^2 = .377$, Observed power = .917. Follow-up ANOVAs described a statistically significant difference between teachers in the ELA and Other groups for TLC_IntCurr_CompScore Welch's $F(2, 25.639) = 4.354$, $p = .044$.

School Classification

A MANOVA was processed for School Classification. There were two groups with a total of 27 responses: Urban ($n = 14$) and Rural ($n = 13$). There was homogeneity of variances as assessed by Levene's test for equality of variances TLC_Coor_CompScore, $p = .328$; TLC_Coop_CompScore, $p = .765$; TLC_IntInst_CompScore, $p = .389$; TLC_IntCurr_CompScore, $p = .321$). Teacher librarian collaboration based on school

classification across the four dependent variables in the category were normally distributed, as

assessed by normal Q-Q plots (Appendix F). There were no outliers, as assessed by box plot

(Appendix G). Data are mean ± standard deviation, unless otherwise stated. Teachers from urban

schools rated their levels of Teacher Librarian Collaboration higher on all four levels

(TLC_Coor_CompScore = 14.00 ± 6.373, TLC_Coop_CompScore = 14.357 ± 6.778,

TLC_IntInst_CompScore = 13.286 ± 6.776, TLC_IntCurr_CompScore = 13.00 ± 6.563) than

teachers from rural schools. Mean scores for School Classification were TLC_Coor_CompScore

= 13.444 ± 5.699, TLC_Coop_CompScore = 13.629 ± 6.313, TLC_IntInst_CompScore = 12.148

± 6.125, TLC_IntCurr_CompScore = 11.926 ± 5.948. Table 11 provides results of the

MANOVA.

Table 11

School Classification – Teacher Librarian Collaboration

Dependent Variable	School Classification	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
TLC_Coor_CompScore	Urban	14.000	1.545	10.818	17.182
	Rural	12.846	1.604	9.544	16.149
TLC_Coop_CompScore	Urban	14.357	1.708	10.840	17.875
	Rural	12.846	1.772	9.196	16.496
TLC_IntInst_CompScore	Urban	13.286	1.637	9.914	16.657
	Rural	10.923	1.699	7.425	14.422
TLC_IntCurr_CompScore	Urban	13.000	1.591	9.723	16.277
	Rural	10.769	1.651	7.368	14.170

There was not a statistically significant difference between the TLC composite scores for

teachers based on school classification $F(4.00, 22.00) = .248$, $p = .908$, Wilks' $\Lambda = .957$, partial

$\eta^2 = .043$, Observed power = .094.

School Size

A MANOVA was processed for School Size. The original groupings for school size of small/medium/large had one group with too few members (Medium, *n* = 3). The minimum number needed based on the number of DVs was four. The researcher collapsed the small and medium groups to create two groups of schools: Small/Medium Schools with under 1,000 students and Large Schools with over 1,000 students. There were two groups with a total of 27 responses: Small/Medium Schools (*n* = 8) and Rural (*n* = 19). There was homogeneity of variances as assessed by Levene's test for equality of variances TLC_Coor_CompScore, *p* = .977; TLC_Coop_CompScore, *p* = .343; TLC_IntInst_CompScore, *p* = .116; TLC_IntCurr_CompScore, *p* = 865.). Teacher librarian collaboration based on school size across the four dependent variables in the category were normally distributed, as assessed by normal Q-Q plots (Appendix F). There were no outliers, as assessed by box plot (Appendix G). Data are mean ± standard deviation, unless otherwise stated. Teachers from small/medium schools rated their levels of Teacher Librarian Collaboration higher on all four levels (TLC_Coor_CompScore = 14.250 ± 6.182, TLC_Coop_CompScore = 14.375 ± 5.655, TLC_IntInst_CompScore = 12.375 ± 5.069, TLC_IntCurr_CompScore = 12.125 ± 5.817) than teachers from large schools. Mean scores for School Classification were TLC_Coor_CompScore = 13.444 ± 5.699, TLC_Coop_CompScore = 13.629 ± 6.313, TLC_IntInst_CompScore = 12.148 ± 6.125, TLC_IntCurr_CompScore = 11.926 ± 5.948. Table 12 provides results of the MANOVA.

Table 12

School Size – Teacher Librarian Collaboration

Dependent Variable	School Size	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
	Small/Medium Schools (<1000)	14.250	2.046	10.036	18.464
TLC_Coor_CompScore	Large Schools (>1000)	13.105	1.328	10.371	15.840
	Small/Medium Schools (<1000)	14.375	2.269	9.701	19.049
TLC_Coop_CompScore	Large Schools (>1000)	13.316	1.473	10.283	16.349
	Small/Medium Schools (<1000)	12.375	2.208	7.828	16.922
TLC_IntInst_CompScore	Large Schools (>1000)	12.053	1.433	9.102	15.003
	Small/Medium Schools (<1000)	12.125	2.144	7.709	16.541
TLC_IntCurr_CompScore	Large Schools (>1000)	11.842	1.391	8.977	14.707

There was not a statistically significant difference between the TLC composite scores for teachers based on school size $F(4.00, 22.00) = .079$, $p = .988$, Wilks' $\Lambda = .986$, partial $\eta^2 = .014$, Observed power = .063.

Librarian Credentials

A MANOVA was processed for librarian credentials. There were not enough group members in three groups within the library staffing/credential variable to meet the minimum count of four (5) members per group needed to run MANOVA: Volunteer ($n = 1$); PT, Non-Cert, No IL Skills Support ($n = 2$); and PT, Cert, Limited IL Skills Support ($n = 1$). There were sufficient group members for FT, Non-Cert, Limited IL Skills Support ($n = 4$) and FT, Cert, IL Skills Support ($n = 19$). The librarian credentials variable was collapsed into two groups: Not Certified, which consisted of Volunteer/PT, Non-Cert, No IL Skills Support/FT, Non-Cert, Limited IL Skills Support ($n = 7$) and Certified, which consisted of PT, Cert, Limited IL Skills

Support/FT, Cert, IL Skills Support ($n = 20$). There was homogeneity of variances as assessed by Levene's test for equality of variances (TLC_Coor_CompScore, $p = .848$; TLC_Coop_CompScore, $p = .555$; TLC_IntInst_CompScore, $p = .243$; TLC_IntCurr_CompScore, $p = .100$).

Teacher librarian collaboration based on librarian credentials across the four dependent variables in the category were normally distributed, as assessed by normal Q-Q plots (Appendix F). There were no outliers, as assessed by box plot (Appendix G). Data are mean ± standard deviation, unless otherwise stated. Teachers who reported the credentials of their school librarian at the Not Certified schools rated their levels of Teacher Librarian Collaboration higher on all four levels (TLC_Coor_CompScore = 14.143 ± 6.388, TLC_Coop_CompScore = 13.714 ± 7.135, TLC_IntInst_CompScore = 13.714 ± 7.296, TLC_IntCurr_CompScore = 13.714 ± 7.610) than teachers who reported their school librarians as Certified. Mean scores for librarian credentials were TLC_Coor_CompScore = 13.444 ± 5.699, TLC_Coop_CompScore = 13.629 ± 6.313, TLC_IntInst_CompScore = 12.148 ± 6.125, TLC_IntCurr_CompScore = 11.926 ± 5.948. Table 13 provides results of the MANOVA.

Table 13

Librarian Certification – Teacher Librarian Collaboration

Dependent Variable		Mean	Std. Error	95% Confidence Interval Lower Bound	Upper Bound
TLC_Coor_CompScore	Not Certified	14.143	2.191	9.630	18.655
	Certified	13.200	1.296	10.530	15.870
TLC_Coop_CompScore	Not Certified	13.714	2.433	8.703	18.726
	Certified	13.600	1.440	10.635	16.565
TLC_IntInst_CompScore	Not Certified	13.714	2.333	8.910	18.518
	Certified	11.600	1.380	8.758	14.442
TLC_IntCurr_CompScore	Not Certified	13.714	2.255	9.071	18.358
	Certified	11.300	1.334	8.553	14.047

There was not a statistically significant difference between the TLC composite scores for teachers based on librarian credentials $F(4.00, 22.00) = .600$, $p = .667$, Wilks' $\Lambda = .902$, partial $\eta^2 = .098$, Observed power $= .168$.

A statistically significant relationship was found between teacher and librarian collaboration levels and teacher content area (primary teaching discipline). A statistically significant relationship was not found between teacher and librarian collaboration and school classification, school size, and librarian credentials. We must reject the hypothesis and accept the null hypothesis.

This concludes the presentation of the quantitative data. Next is an exploration of the reported experiences of collaboration between high school teachers and school librarians from the teacher perspective in their own words.

Section 3: Research Question 3

Teachers expressed in their own words their collaboration experiences with school librarians. An open-ended question that sought additional information from teachers about their experiences with IL skills learning generated responses that the researcher coded thematically using descriptive coding. Additionally, follow-up interviews with teachers provided the researcher with the opportunity to create layered profiles of a teacher from each state within the research site and to share the richly nuanced stories of teachers and their experiences with librarian, their colleagues in the educational endeavor.

Results for Research Question 3: What is the reported experience of collaboration between high school teachers and school librarians from the teacher perspective?

Understanding the particular workplace factors that impact the ability of teachers to collaborate with school librarians is important for school administrators, boards, and state level

agencies to consider as they are evaluating and crafting educational policies and practices. While the novel survey instrument used in this study generated substantial quantitative data regarding teacher perceptions of student information literacy skills competency and levels of collaboration between teachers and librarians, it was essential to hear from teachers in their own words because close ended survey questions are inadequate for the task of exploring the rich levels of detail that can be shared and revealed through responses to open ended questions and follow-up interviews. Survey participants were asked an open-ended question placed at the end of the teacher and librarian collaboration questions asked participants for any additional information about student IL skills learning. There were 9 usable responses to the final prompt that solicited additional information from survey participants about student IL skills learning. These 9 responses included details about teacher experiences related to collaboration with a librarian. Due to the low number of responses for the "please add anything" prompt, responses were not thematically coded. The following are selected responses from the "Please add anything" prompt from the survey pertaining to teacher and librarian collaboration.

- "Because we are a small school, we do not have much of a library. We have a (wonderful) classified staff member who manages it, but resources and instruction in this area are limited."

- "We do not really have a high school librarian currently, so collaboration with said librarian is not really possible."

- "Our library nonfiction section was gutted because we have online resources widely available. That said, its incomplete and in my opinion doesn't truly prepare students for college life. While using online resources is important, students lack any real media literacy and have no idea how to use it properly. I try to teach the skill, but it really should be broached in middle school. Our library is also not regularly staffed, and the one who does is not a certified librarian. I love to use library resources, but frankly its just all geared to our elementary students."

- "Emphasizing district mandates and limited time and resource (space) in terms of library collaboration."

- "this was kind of a weird survey to take as a math teacher. We don't deal directly with information literacy in that way. I can have opinions on it but i will likely never be working with a librarian on this skill or even with my students"

- "Our school does not have a library. Every student has a school laptop and they have access to an online library, but I would say that they mostly use Google"

- "My high school librarian came from an Elementary school. I have tried to collaborate with her and have asked her to help with instruction and support. Some projects I have been told "I can't do that." Other times she has helped, but reluctantly."

- "Our librarian does nothing to coordinate with teachers that I am aware of. All I know is she schedules times for teachers to check out their textbooks at the beginning of the year and check them back in at the end of the year. She also coordinates the paperwork (instructions and teacher room assignments) for the ACT. Other than that, she runs the library"

- "Often times librarians know how to use a library but are not critical thinkers and may not have a lot to offer students other than how to find materials. Additionally, it is very hard to rate some of these things because of the varied level of aptitude amonst (sic) students. Learning and research take time, commitment to academic work, and a strong work ethic. Many students do not show such characteristics in the academic realm."

Themes and coding developed for the interview data were applied to the open response data from the survey. Qualitative data from the open responses was analyzed discretely from the qualitative data obtained from the interviews. Themes and codes applied to the open responses from the survey are presented in Table 14.

Table 14

Themes and Codes from Survey Open Response "Please add anything about student IL SKILLs learning that this survey has not addressed."

Themes	Codes	Count
	Funding	0
	Professional Development	0
	Librarian Credentials	1
	Librarian Employment Status	1
Availability of Resources and Instructional Support	Library Qualities	2
	Library Staffing	2
	Librarian Responsiveness	3
	Library Capacity to Support Educational Needs	4

Themes	Codes	Count
	TOTAL	13
	Isolation	0
	Administrative Support	0
	Librarian Workload	0
	Teacher Workload	0
	Communication	0
	School size factors	0
Structural factors of educational system	District Requirements	1
	Scheduling	1
	Time Constraints	2
	Curriculum	2
	TOTAL	6
	Basic Student Literacy	0
	Research Project	0
Student capabilities and educational needs	Student Library Use	0
	Impact of Technology	2
	Student Aptitude	4
	TOTAL	6
	Importance of Collaboration	0
	Teacher Awareness	0
	Teacher Responsiveness	0
Teacher perceptions and practices	Teacher Practices	0
	Relevance of Collaboration	1
	Perception of Librarian	3
	TOTAL	4

Interview Data

At the end of the survey, participants were asked if they would be interested in participating in a follow-up interview with the researcher. Out of the 76 participants, 10 expressed interest in participating in the follow-up interview. The researcher emailed the volunteer respondents to confirm their interest in and availability for an interview with a request for a reply to the email to confirm or reject interest. The researcher received confirmation from 7 participants who expressed interest in a follow-up interview. Those respondents were sent an

invitation to a Zoom video link based on available times that the respondents provided to the

researcher. All seven of the respondents met with the researcher at their scheduled times. Two of

the respondents were disqualified, one due to a potential conflict of interest and one because they

were employed primarily as a librarian, and not as a classroom teacher. The researcher opened

the interviews by asking some demographic questions as icebreakers before asking the

participants to share information about the librarian position at their schools. The researcher

successfully completed interviews with the remaining five respondents, one from each of the

states in the research site: Idaho, Montana, Nevada, Utah, and Wyoming. Pseudonyms were used

for interviewee, school, and place names. Thematic coding was used to analyze the interview

transcripts. The themes and codes identified in the interview transcripts are presented in Table

15.

Table 15

Themes and Codes from Interview Responses

Themes	*Codes*	*Count*
	Librarian Credentials	1
	Funding	2
	Librarian Employment Status	5
	Library Staffing	6
Availability of Resources and Instructional Support	Librarian Responsiveness	13
	Library Qualities	16
	Professional Development	17
	Library Capacity to Support Educational Needs	24
	TOTAL	84

Themes	Codes	Count
Structural factors of educational system	Librarian Workload	1
	School size factors	1
	Administrative Support	2
	Communication	2
	District Requirements	4
	Scheduling	4
	Teacher Workload	5
	Isolation	6
	Curriculum	9
	Time Constraints	10
	TOTAL	44
Roles and responsibilities of educators	Traditional Lecture Format	2
	Team teaching	4
	In-Class Support	5
	Role of Librarian	14
	Role of Teacher	23
	TOTAL	48
Student capabilities and educational needs	Basic Student Literacy	5
	Research Project	7
	Student Library Use	8
	Student Aptitude	11
	Impact of Technology	13
	TOTAL	44
Teacher perceptions and practices	Teacher Responsiveness	5
	Teacher Awareness	6
	Importance of Collaboration	9
	Perception of Librarian	12
	Relevance of Collaboration	13
	Teacher Practices	17
	TOTAL	62

Participant Portrait #1: Maggie, Sandstone High School, Utah

"I have none." - Maggie

Maggie is an AP history teacher at a large public high school located in a rural setting in southern Utah with an enrollment of over 1,200 students, although she was quick to point out that she does not consider the high school large by Utah standards. She joined the interview from couch in the airy living room of her home which was beaming with reflected light from a recent snowfall. Birds chirped pleasantly in the background. Maggie was engaged and thoughtful throughout the entire interview. She leaned into the screen and processed questions for a few moments before responding with care and reflection. Her voice was clear and full of the conviction that comes from years of working in a profession about which she cares deeply, but which is tempered by those same years of experience. Maggie is a veteran teacher, with 24 years of service at her current school, preceded by one year at another high school. When asked to talk about the librarian at her school, she replied with a reminder of our email correspondence when arranging the interview. Maggie looked into the camera and said, in a resigned tone with just a touch of bitterness, "*...We've been without a library and a librarian for about a little over seven years."*

Maggie, ever the history teacher, reached back into her memory to describe in some detail the past library services at the school. Her face lit up as she spoke about the library of old, her voice tinged with longing for the a past time, long gone, "*We had a fantastic library and a fantastic librarian/media specialist."* But then, change came for the library in the form of a new school initiative. Maggie took a dismissive tone as she shared the fate of the library space as *"It was repurposed for a kind of internship type program..."* The lack of attention to library services at the school continues to this day. When thinking about any kind of library space at the school

Maggie noted that there is not even a library computer lab because *"Our building is under construction right now. And so the portion of the school that was the library…no longer exists because they're adding onto that section of the building."* Maggie sounded tired as she recounted the lack of a library and the disposition of one of its core features, the print collection, *"I don't even know what happened to the books, to be honest with you."* She continued to discuss the loss of the library at the school by pivoting to a brief discussion of the technology program run by the school. The district has adopted a one-to-one computer program and each student at the high school is issued a MacBook Air. Maggie expressed her dissatisfaction with the arrangement and its inadequacy to replace a functioning school library: *"There's…there's nothing. They all have their own…well, district issued laptops."* The look of resignation on her face and the irony dripping from her voice, conveyed the utter inadequacy of the laptop program as a library substitute. At this point in the conversation, the cockatiels began chirruping raucously. This presented a distraction for Maggie and she got up to tend to them. When she returned she shared that the loss of the library was not taken lightly by stakeholders, stating, *"I do have to tell you, it was quite distressing. There was a big brouhaha over it by students, by teachers, and by parents. But to no avail."* Uncertainty about the future of the school library remains. Maggie observed that *"And I don't know when they add on to the building if they're going to…if library's…if library's included or not. My hope it will be, but I don't know."*

Maggie has had to take on the teaching of information literacy skills to her students by herself, since she lacks a school librarian with whom to collaborate. When it comes to her information literacy skills, *"Everything is self-taught."* She is a veteran teacher and expressed confidence in her ability to teach her students information literacy skills, of which she stated emphatically, *"I think it's…it's critical. I don't know how you can teach history without teaching*

those skills, but they're very difficult to teach and you have to make a commitment to learning

them and teaching them." Maggie expressed a need for additional support in teaching students to

use information ethically and legally, the fifth level of the information literacy definition used for

the study, and an area of expertise for librarians. When thinking about the instructional methods

that could be used to develop student understanding of and competency for each of the five IL

skills, Maggie reflected for a few moments, before sharing, *"I basically do it all myself. I don't*

team teach. We have what we call PLCs, professional learning communities, but since I'm the

only teacher that teaches AP world history, I do not have anyone to collaborate with. Otherwise,

I would love that."

Maggie's words segued smoothly into the discussion about barriers that impede the

teaching of information literacy skills. As a content area specialist in history, and the only

teacher assigned to teach AP history, Maggie is an independent, educational professional. She

considered barriers to teaching information literacy skills through this lens: the classroom

teacher. She considered *Not enough teaching time* and *Not enough prep time* to be the biggest

barriers to teaching low level information literacy skills such as *IDs and Addresses Information*

Need. But, when it came to teaching more advanced information literacy skills, she grappled

with the absence of a school librarian with whom to collaborate. Maggie struggled to rank

Librarian support. She shared the following about the fourth barrier to teaching information

literacy, finally settling on *Library support*. *"That's…maybe…it's…yes, level of librarian*

support since we don't have a librarian." The discussion moved on to focused questions about

collaboration with a librarian. Maggie's quick-witted response to the shift in the conversation

was glib, *"I have none."* The researcher asked Maggie to reflect on her experience of

collaboration with a librarian. Her countenance lit up immediately and she gushed about her

experience: *"Oh, yeah! It was fabulous. So I think we probably had one of the best librarians and media specialists in the state. She was phenomenal. In fact, we could just shoot her an email or ask her and she would…she would create web quests for students. She would come in and teach research skills. She would – Oh, she did so many. Great, wonderful, really good stuff."* Maggie's happy recollection of her experience working with a school librarian turned melancholic as she reconciled it with the current situation affecting libraries and the loss of collaboration, and she shared in closing, *"I wish she offered it to everybody in the building. She also had a fabulous book collection and I think she read everything that she ordered. And see we had students who would check out library books. It was a great place for kids just to go and study and read and hang out was awesome. I still miss our library."*

Maggie has experienced a lot of change in the high school where she has taught for the past 24 years. She recalled fondly the times of collaboration with the school librarian, which have been swept away like the southern Utah sands.

Participant Portrait #2: Daryl, Big Rock High School, Nevada

"I'm science." - Daryl

Daryl joined the interview from his classroom at Big Rock High School, a newer school built in the 21st century, with over 3,330 students in the burgeoning suburbs around a large city in southern Nevada. The blinds were low and southern facing windows filtered light from the cloudless winter sky over The Silver State. A ball cap sat low over Daryl's eyes. He looked comfortable in a sweatshirt emblazoned with the school mascot. This year, Daryl was teaching 10th-12th grade physical science. He was quick to point out that he has taught every science in 7th-12th grade in his 34-year teaching career. Daryl has two graduate degrees, one in education and one in administration. Interaction with a school librarian was not part of Daryl's regular routine as a science teacher. During a discussion about professional development in the teaching of information literacy skills competencies to students, Daryl expressed confidence in his ability to teach these skills through his lens as a solo science teacher, with a heavy focus on technology: *"I'm very proficient in other technologically literate aspects. If I needed to look up something or find something. In my perspective, it was never really an issue."* He did not mention working with a librarian in the development of his information literacy skills, either through professional development or self-taught activities.

Daryl continued to discuss his experiences as a teacher in a quick series of sentences and with no-nonsense approach. As the discussion shifted to the topic of providing information literacy instruction to students, Daryl focused clearly on the task as it related to his abilities as a teacher. He expressed high confidence in his ability to teach students about finding, evaluating, and using information effectively. When asked to share his confidence in teaching students how to use *information ethically and legally*, he responded, *"Highly confident"* and then elaborated,

something that he had not offered previously. *"But I've kind of…it's kind of when you look at something online, like say, if you're going to find a document that you want to use, that might be copyrighted, or something like that, that's difficult in our profession, because you know, how the copyright laws work and stuff like that."* Daryl's statement did not include any mention of working with a librarian or the value of what a librarian could bring to the questions he had about copyright. He concluded his remarks on teaching information literacy skills by stating, *"You're using information that's out there either in print, or what somebody else shared, and maybe modifying it to…you're tailoring it to your needs. So I wish we could just use it. But we can't just do that."* Information challenges are technical challenges for Daryl that he solves on his own. As for teaching methods he uses, Daryl shared that teaching science is different from other content areas: *"We use group instruction sometimes with kids with each other because…I don't use…we don't go into the library per se in science, like an English or history might do. We occasionally might, but it's not as frequent as the other subjects. Very seldomly."*

When asked to describe barriers to developing information literacy skills competencies in students, a learning outcome in which librarians have expertise and often is taught in collaboration with a librarian, he focused heavily on technology support and the library as the maintainer: *"She's (the librarian) is very supportive. She's always putting stuff out there for the whole faculty and, you know, in coverage of what's out there technologically and availability and things like that. Our kids all use Chromebooks here. The Chromebooks get issued out of the library…kids don't even use paper books here."* From Daryl's perspective as a teacher assigned to teaching science content, the librarian's focus on Chromebook management and a print collection that is *"very seldomly used"* is not a barrier. Rather, collaboration with the librarian is just not something he thinks about when considering barriers to teaching student information

literacy skills. The biggest barriers he perceives to teaching information literacy are *"teaching time and prep time."*

Daryl's expressed experience of collaboration with a librarian started to shift as the conversation flowed to a direct consideration of that topic. When asked to describe the types of collaboration he has with a librarian he confidently replied, *"Oh, we got collaboration with Chromebooks. We got collaboration with literacy in reading comprehension and history…They use the library daily."* From Daryl's perspective, his school is *"pretty good"* with that level of collaboration. He also heaped praise on the librarian for her strengths as a colleague, glowingly sharing that she has *"good communication, collaboration."* The librarian also *"sends information out there for us to disseminate or share or schedule if need be. And she's willing to collaborate with any of us on any multitude of topics that she puts there."* Still, Daryl states, *"I'm science,"* so any collaboration, even at the lowest level of coordination, *"would be an occasional"* experience. He shared this matter-of-factly, noting that *"if you were interviewing an English teacher, or a history teacher, they would probably say frequent or a little bit more than, you know, me and what I do."* As Daryl pondered barriers that impact his ability to collaborate with a librarian, he paused and became more reflective and then posited that the reason for not collaborating with a librarian is *"the subjects I teacher are with what I do…I don't need to interact with my librarian on a frequent basis, or anything of that sort, at least not in this stage of my career."* Collaboration with a librarian is *"not necessary"* with *"the curriculum I teach."* But, he added, collaboration is always a possibility because *"(i)f I needed something a little bit more informative like that…it's not a problem. And there would never be an issue for me scheduling that."*

Participant Portrait #3 – Tara, Big Sky High School, Montana

"I don't work with the librarian at all." - Tara

Tara joined the interview from her dimly lit kitchen early on a Montana morning before heading off to some appointments. She was battling a bit of a cough and some congestion which had come on after the winter holidays. Tara has a bachelor's degree in education and teaches math to grades nine through twelve at the small rural school where she works, where enrollment hovers around 500 students, *"but it's not stable. It'll usually drop below 500 by like the end of the year."* This was her fifth year of teaching, all of which have been at the same school where she is currently employed. Though the hour was early and she was fighting a cold, Tara perked up when discussing the librarian at her school, with whom she was familiar, including his journey as an educator: *"Well, he was a social studies teacher at the middle school for a long time. And then, like, just maybe last year, he took over as librarian…"* She recounted that the librarian *"was getting his certification and I believe he's done now."* The library itself is *"not a very big library for 500 students or so,"* but there is a computer lab and *"two walls of bookshelves"* and *"three bookshelves. That like stand alone."* Still, the *"librarian has been doing a pretty good job of updating the print collection."*

As the conversation turned to considering the development of her information literacy skills as a teacher Tara expressed a lack of professional development, stating, *"I don't recall any PD we've done over the last five years."* Collaboration with a school librarian at the professional development level has not been part of her growth as a math teacher, but she feels *"like it's possible, like, that the History or English departments may do their own thing on it. But, like, as math or science teachers, I feel like we don't – I don't know anything about it, basically."* Tara also shared that her confidence to teach information literacy was *"somewhat confident"* to

"confident" and that, if she were to teach information literacy skills as a math teacher, strategies such as *"team teaching would probably be a good one, or collaboration with our librarian."*

The interview shifted to a discussion of student information literacy skills competency, which Tara approached thoughtfully. Her evaluation of the information literacy skills competencies possessed by her students was generally low, with a response of *"somewhat competent"* when asked about her students' abilities to *access information effectively and efficiently*, but responses of *"not competent"* for the other four information literacy competencies. Tara was concerned about the opportunities for students to develop information literacy skills because student have *"low literacy levels in general."* She perceives that this deficit creates a situation where *"teachers are so focused on getting students to even be able to read the materials they want them to read and understand them that I feel like some of this kind of falls out the window."* Students could benefit from more collaboration but, she states flatly, *"I don't have any perception that any of the teachers ever work with the librarian."* This is an area of strength that the librarian can bring because *"I think, and obviously, this would be something he would be pretty strong, right? I mean, that's like, what they learn. And then, also, he was a history teacher for a long time."* Tara believes teachers have concerns about student abilities in, for example, the information literacy level of *evaluates and thinks critically about information* because she hears *"kind of complaints that the students can't do it"* and at her school. However, teachers in general are not collaborating with the librarian to increase student information literacy skills competencies because she doesn't *"hear conversations about like – So, what they're doing for it."*

The conversation transitioned to the topic of barriers to teaching information literacy skills. Tara was quick to point out *"not enough teaching time and not enough preparation time"*

as the two biggest barriers to teaching information literacy skills for each of the five categories.

Tara Collaboration with a librarian ranked as a middle level for each of the five categories, ranging from a low of five to a high of three. For *using information effectively for a specific purpose*, Tara responded, *"I'll move in not enough librarian or level of librarian support to the third spot."* The biggest overall barrier is lack of research skills, which is different from her experience as a student where *"the idea of the research and pulling information and kind of starting to cite your sources started pretty young."* She does not *"have a sense that that's really happening anymore."* Tara expressed concern about the general academic capabilities of her students, that there's a *"sense of frustration"* in high school teachers because they cannot meet expectations because *"the foundation that we're building off of"* to empower learning, students *"haven't gotten the lower levels of."*

When asked to think specifically about how she, as a math teacher, collaborates with a librarian, Tara answered bluntly, *"I don't work with the librarian at all."* That does not mean she would not appreciate the opportunity to work with the librarian, noting that he *"would be a great person to collaborate with."* Tara spoke highly of the librarian, noting that *"he has been teaching for a long time"* and *"he often sends out emails about any new, like, product."* She acknowledges the librarian's efforts to engage with teachers across the school, and she affirmed the desire of the librarian to connect with teachers and that she thinks *"the library has a lot of resources, and he would collaborate."* Still, she says, *"I just don't know that people do."*

The general lack of awareness of collaboration with the librarian carried over into Tara's interactions with the librarian. As a math teacher, Tara reported *"no collaboration"* with the librarian at even the low levels of coordination or cooperation. At the level of *integrated instruction*, a level of collaboration where, according to definition, the librarian is *viewed as an*

educational peer she paused thoughtfully, saying, *"Oh, gosh. I certainly view him as an educational peer, but I just don't use the library"* before answering *"So, no, no"* to engaging in that level of collaboration. Tara's response regarding her engagement in collaboration with the librarian at the highest level of collaboration, *integrated curriculum*, was unexpected, *"I'll actually say occasional in terms of planning or assessment."* Her answer brought her to reconsider her earlier expression of her experience of coordination with the librarian, saying *"in terms of events or whatever that the library does"* that she has *"talked to the librarian about, so I'll change the first one with the coordination to occasional."*

When discussing barriers to collaboration with the librarian, Tara was clear that *"there are no barriers"* and that *"he's free and open and I certainly could…I just don't."* She started to think about ways that she could collaborate with the librarian in a way similar to *"reading across the curriculum."* Instead, *"you could say it's information literacy across the curriculum"* and she *"could just as well have my students do a research project that would support their math learning or maybe get something that gets them interested in something mathematical."* After discussion the concept of barriers that impede collaboration with a librarian, Tara reconsidered the notion and named *"not enough teaching time, not enough prep time, curriculum – not really supporting that kind of thing"* as the most substantial barriers to collaboration with a librarian. *"Because obviously it's a math curriculum."* What would need to change for Tara to experience improved collaboration with her school librarian is first on her *"own commitment to doing an assignment that requires more information literacy to be used, and then because then I could just go talk with the librarian if I needed help, he would totally be open to it."* More sustained change would require *"changes to curriculum or to standards"* which would provide *"more time for research projects."* In the end, Tara returned to a common theme throughout the conversation:

time. *"In the long run, I think if I wanted to have much more collaboration my librarian and use much more information literacy that would require that collaboration, I feel like I need…I just need more time."*

Participant Portrait #4 – Carol, West View High School, Wyoming

"My librarian rocks!" - Carol

Carol is a veteran English Language Arts teacher with 22 years of teaching experience. She joined the interview from her cozy living room during a cold winter day in northern Wyoming where the temperature was expected to dip into the sub-zero range over the next few days. Carol, who has a master's degree plus additional credits, works at a large public high school located in a rural area in the upper region of Wyoming, where she teaches ninth-eleventh grade gifted and talented English and two sections of English 11. She also serves as department chair. The school's enrollment has grown from 1,000 in 2019-20, to approximately 1,100 since the COVID pandemic began. Their school employs a full-time, professionally certified librarian. Every student has a Chromebook, so the library has *"a few computers."* Aside from housing a *"pretty thorough"* print collection with *"a good, solid fiction section"* the library is *"a place where we do a lot of our teacher meetings and such."*

Within the first few minutes of the interview, Carol was sharing positive aspects of the librarian at her school, noting that *"we're starting our research unit in a week and a half"* and the librarian has *"made sure to have our updated research list so that she can have print materials available."* That way, the library will have *"at least one print source available"* for students *"on any of the topics that we have in our list."* Carol beamed as she recounted the use of the library by students outside of classroom and guided use such as for after school program use when it is *"slam packed, and there's kids everywhere."* Carol's love for the library was palpable and her enthusiasm carried over into the discussion of professional development with information literacy.

Carol has worked with the same librarian her *"entire career."* She praised the librarian for being *"enthusiastic"* and noted that *"she does professional development"* with the English teachers. The librarian provides instruction on *"online databases"* and the *"kinds of technology that we have."* In addition, the librarian *"does workshops, both with teachers, and she comes into our classrooms and works with the kids a lot."* Carol noted almost breathlessly the high level of engagement by the librarian and observed that *"She loves to be really involved."* Carol could not speak highly enough of her librarian, adding *"And she's amazing!"* Her desire *"to be on top of things"* led her to pursue an online master's degree and an additional online program through a large public university in the Southwest. This helps her *"feel like I'm trying to stay current."* If she doesn't work on keeping her experience relevant *"the kids tune out."* Artificial intelligence is also an opportunity and concern for Carol, because *"the kids have to know how to use it appropriately."* She plans on integrating ChatGPT into the brainstorming phase of their upcoming student research projects. She will also work with students *"on bias and taking a look at their sources."* The process will consist of the thoughtful use of information from subscription databases and the Internet and they will *"work on all of these things in conjunction with our librarian, of course."*

Carol expressed a high degree of confidence in her ability to teach information literacy skills to her students. The main project used to teach these skills is a *"research paper"* with *"research presentations"* with instructional support in the form of *"lecture and demonstration from me throughout the entire process."* Carol co-teaches these lessons with the librarian and also uses *"team-teaching":* The ELA teachers work together so they can each share their strengths to help students learn. Carol lights up as she describes the teaching environment from an example year: *"So we've got teachers working together, the kids working together, the*

librarian working together, and then we've got parents thrown in the mix there, too. So we've just got everybody." Sometimes certain teachers will teach more of the writing process while other teachers work with students on the research process. Additionally, the librarian will collaborate by visiting classrooms, working with students in the library, and *"come around to each individual student and ask them, have they found their sources?"* It helps that the library is conveniently located. *"All of us English 11 teachers are just right across the library."*

When Carol considers the information literacy skills competency possessed by her students, she places their abilities at the *somewhat competent* to *competent* level. Carol grappled with discussing her student's information literacy skills. She mentioned that they have not yet completed the research project which will help them learn these skills. *"I think we can think about my kids from last year after I've taught this unit and it would be a way better answer,"* said Carol. She described the barriers that she encounters when trying to teach information literacy skills to her students, starting with *"not enough preparation time"* followed by *"not enough teaching time."* Beyond that, Carol had difficulty discussing barriers, finally identifying *"not enough professional development"* because *"we don't have specific professional development."* She thought for a moment before adding, *"It's been quite a while. We used to."* Carol was quite clear that *level of librarian support* was her lowest concern as a barrier, stating without hesitation, *"As I'm telling you, she, Andrea, is just a rockstar."* Carol perceives *"not enough preparation time"* as the biggest barrier on student information literacy learning. However, she described the need for preparation time with her Professional Learning Community and that she thinks about *"not having enough preparation time together as a team."* And this, she observed, *"is something that administrators have to help us do."*

Carol had a lot to share about collaborating with the librarian and how the librarian seeks to engage with the school. She observed that the *"librarian makes it a point to be involved in all of the subjects."* The librarian has a *"guesstimating jar"* to help support math, for example, and hosts events for teachers *"like snacks with us once a month*." Carol described the outreach work done by the librarian and the work they do to include the librarian in the English Department meetings. There is a *"whole week set aside for her to do her information literacy spiel with the kids"* at the start of the school year. Carol expressed high praise for the librarian and noted that *"(s)he makes sure that we know she's always available."* Carol indicated high levels of collaboration with the librarian on the four lowest levels of the Teacher Librarian Collaboration scale, and only indicated frequent collaboration on the level of *integrated curriculum* because the librarian *"is involved in assessment a little bit, but I wouldn't say consistently."* The only real shortcoming Carol described regarding the school librarian, and the only meaningful barrier she could identify, was that *"there is just not enough of her to go around"* because *"she is one librarian for more than 1,000 students."* Carol ended the interview by expressing emphatic appreciation for her librarian colleague: *"My librarian rocks!"*

Participant Portrait #5, Lori, Canyon Crest High School, Idaho

"I'm my own librarian." - Lori

Lori stationed herself on the patio of her Idaho home on an unusually warm and pleasant January day. She teaches art at a K-12 charter school that participates in the International Baccalaureate (IB) program, which is considered a rigorous curriculum. Lori has a master's degree and has been teaching for around 15 years *"in different capacities, different places."* The school is located in an urban area and has a total enrollment of around 1,000 students, with approximately 500 at the high school. Lori's school has a *"basic to adequate"* library with laptops to checkout but admits *"I don't go in there a lot."* The librarian, whom she thinks is full-time, might be certified as a librarian, but she is not sure. Lori believes the librarian is assigned to work with all grade levels, but *"at the high school level, we don't work one on one with the librarian as much as elementary."*

Early on in the conversation, when discussing the library, Lori mentioned the rigorousness of the IB curriculum and how *"reading and writing is integrated really heavily"* and *"(e)ven in art, we do a ton of reading research."* In Lori's eyes, *"the library is geared a little bit more towards the K through 6 crowd versus the high school."* Lori did not recall much about her pre-service and professional development as a teacher prepared to instruct students on information literacy skills other than training on *"the extended essay"* which involved *"the coordinator"* who led *"some basic trainings"* on how to assist students *"find reliable sources."* Lori shared that most of her information literacy development has been self-taught because of her work in the IB *"Diploma Program"* which is part of the 11-12 grade curriculum and for which students can earn college credit. She has not *"had a lot of personal training provided"* and she feels *"like I've had to go out and do the bulk of the research."* She is *"always*

researching myself" about how to *"teach students how to evaluate and synthesize and find good research sources."* Lori concluded that, in practical terms, *"it's put on me to figure that out for my students."*

The conversation shifted to a information literacy and Lori provided more details about how she, as content area teacher, provides information literacy instruction to her students. For her students in the 11-12 grades, Lori focuses tightly on the requirements for their research project which includes students to *"research three different artists"* and conduct a *"comparative study"* which involves *"cultural contexts, formal qualities."* This is all work that she does in her classroom as the teacher, including teaching students about plagiarism, which starts in ninth grade with *"every reference photo that they pull up, images or art reference has to be labeled and referenced correctly."* Lori shared that her students are, by and large, *somewhat competent* when it comes to their information literacy skills, except for using information ethically and legally, for which she thinks her students are *"highly competent, because they have to, they can't get their work submitted. I won't even grade it if they aren't abiding by plagiarism rules right off the bat."* She expressed an awareness of the range of information literacy skills possessed by her students because of the range of student abilities. She *"feels like I'm scaffolding. I have very high students. I've got a lot in the middle. I've got low students."* This instruction takes place in the classroom with her, as she guides students through the research process using the lens of art and looking at *"formal qualities"* and information that is *"relevant to the artist's life"* and other details that *"informed this artwork."*

The barriers Lori experienced in teaching information literacy skills to her students started with the vague curriculum used within the IB framework, which she said allows teachers to *"teach this how you see it"* and described as *"open-ended.*" It took her *"about six years to*

finally feel like I was getting a handle on the curriculum." This ownership of the curriculum helped her feel *"really confident"* while at the same time acknowledging that *"it puts a lot on the teachers."* Other top barriers included "*not enough teaching time"* – *"I hear a lot of teachers struggling with that"* - and "*not enough professional development."* Teachers are expected to *"go figure it out. Go teach your curriculum, figure out what you need to do for these kids to pass these exams."* Lori considered support from the librarian as she contemplated barriers to teaching students the information literacy skill of identifying an information need, the lowest level defined by the standards used in the study but hesitated to place this barrier too high on her list *"because in the minds of, like, librarian support, I feel like teachers are the librarians. Like, we are expected to kind of do it all."* Lori eventually placed level of librarian support as the lowest barrier, in alignment with her perception that *"I'm my own librarian."*

Lack of preparation time, technology, and administrator support all were bigger barriers to the teaching of information literacy skills than librarian support for Lori. She shared matter-of-factly that librarian support is *"not something that I'm concerned with. Like, I don't have support from the library. So, yeah."* Still, Lori's perception is that librarian support becomes an issue at the level of learning to access information effectively and efficiently. She ranked librarian support as the third most substantial barrier to learning this skill, stating, *"I think having a more active engagement with a librarian for nine through twelve, I do think that's important."* Having additional librarian support *"could add to the classroom and we don't, I don't really sense that at the nine to twelve level."* Professional development could help, however, Lori perceives that *"some of the information literacy that we've had, it might be geared more towards elementary."* To Lori, this means it *"doesn't really feel applicable to high school or vice versa."* For the IL skill of evaluating information critically, Lori identified *"not enough teaching time"* and *"vague*

curriculum" as the top two barriers, though she recognizes the misalignment with her previous ranking of the curriculum as a barrier because new students to the school are *"lacking the ability to think critically"* and attributes this to the curriculum at their prior schools. Lori placed the level of librarian support at the top of the list of barriers for learning how to use information effectively for a specific purpose and for how to use information ethically and legally. She shared that librarian support would be welcome in teaching students how to use information effectively for a specific purpose *"because I have been my own island and doing everything. It could be really nice to have the support of someone trained in finding information, using it effectively, like, I think a backup."* Lori also thinks that *"librarians actually would be really important for the ideas of talking about plagiarism and finding sources and how to cite them."* The biggest barrier to the effective teaching of information literacy skills for Lori is the students because they *"don't retain it, they don't remember it. You have to show them."* And, Lori added, *"you never know, the group of students who you're going to be starting with."* Lori added sagely, *"That's the reality of teaching, you know."*

As the conversation moved to a direct discussion of teacher and librarian collaboration, Lori included more information about her professional relationship with the librarian, stating that *"just recently, a little bit more with the extended essay."* The librarian is *"taking a more active role to help the teachers out."* This effort has resulted in *"groups of 11/12 graders that are going in weekly"* and she, as a teacher, *"is someone I could go and be supported with that, and that's just kind of newly been put in place this year – is to help students scores because…they haven't been great in the extended essay."* Lori thinks the library's resources are limited in art, observing, *"I don't there's a good range of art books."* And the library, *"for resources and collaboration,"* she perceives, *"it is weak right now."* As an art teacher, Lori is *"not sending*

students" because *"they're not going to find what they need there."* Instead, she directs students to *"Boise Public"* or *"Boise State Library."* Lori's described *"no collaboration"* with the librarian at the levels of coordination and integrated curriculum. She expressed some collaboration at the level of cooperation, where she shared *"there have been some things that I have went and asked about with resources and things."* Lori also indicated occasional collaboration with the librarian at the level of integrated instruction, pausing to think out loud *"librarian initiates"* before stating, *"I would say occasional."* As the interview drew to a close and the winter sun shone brightly on Lori's back, she shared the biggest barrier to increased collaboration with her school librarian by offering: *"Funding?"* Before explaining that from her perspective *"we don't have a huge range of resources"* and they *"do what we can as a charter, but as far as my subject, I don't even know what's available."* In order to meet the needs of her students, she refers them to public libraries or Boise State University because *"I just don't think we have those resources available in our library."*

Chapter V: Discussion

Summary of the Results

As the pace of information production and distribution continues to advance at an exponential rate at the end of the first quarter of the 21st century, the need for our educational systems to develop young people into information literate individuals who are prepared to effectively participate in an information-rich world is clear (Crawford & Irving, 2009; Head et al., 2013; Jones-Jang et al., 2021). The development of students with strong IL competency skills is achieved most effectively through instruction by qualified educators working in the role of school librarians in collaboration with classroom teachers who are content area specialists (Kammer et al., 2021; Lance & Maniotes, 2020; Mohamad, 2017). Issues such as lack of personnel, limited preparation periods, number of courses taught, curricular requirements, lack of administrative support, funding, and a lack of awareness of what comprises IL all present challenges to collaboration (Crary, 2019; Eri & Pihl, 2017; Mertes, 2014; Montiel-Overall & Jones, 2011). Concurrently, there is a nationwide trend in the decrease of school librarians (Kachel & Lance, 2018). The decrease of school librarians reduces the opportunity for collaboration between school librarians and classroom teachers which in turn adversely impacts the teaching of IL skills competency.

Classroom teachers are frontline educational professionals who are tasked with providing instruction to students on a regular basis, assessing the progress of their students, and are held accountable for their academic progress. Yet classroom teachers lack the understanding of what IL is in order to provide IL instruction, even when they report teaching IL skills (Montiel-Overall & Jones, 2011), and assess the IL skills competencies of students (Schiffl, 2020). This deficit in IL skills competency education leads to students who are inadequately prepared for the rigors

required for further academic endeavors (Lanning & Mallek, 2017; Saunders et al., 2017; Stebbing et al., 2019; Svensson et al., 2022). Understanding the factors that impact the perceptions of teachers related to the IL skills competencies possessed by their students and the level of collaboration those teachers have with school librarians will inform and guide policy makers, school administrators, teachers, and librarians as they seek to meet this crucial 21st century educational need.

In this study, the researcher used the theoretical frameworks of the Zone of Proximal Development (ZPD) (Vygotsky, 1978) and the Information Search Process (Kuhlthau, 1993) as the lens through which to investigate teacher perceptions of their students' IL competency skills and the level of collaboration teachers reported having with school librarians. Study participants were asked questions about the IL skills competencies of their students to gather information related to the stages in Kuhlthau's Information Search Process (1993). Additionally, study participants were asked questions about the level of collaboration they have with school librarians in an effort to understand the robustness of the educational environment dedicated to IL skills competency acquisition. The instrument from Montiel-Overall and Hernandez (2012) and their research into teacher librarian collaboration was used to gain detailed information about the frequency of interaction between teachers and librarians at various levels, the engagement in which support student learning within the ZPD. The research questions for this study were:

RQ1: Is there a significant relationship between teacher perceptions of student information literacy competency skills and teacher content area, school classification, school size, and librarian credentials?

H01: There is no relationship between teacher perceptions of student information literacy skills and teacher content area, school classification, school size, and librarian credentials.

RQ2: Is there a significant relationship between teacher and librarian collaboration levels and teacher content area, school classification, school size, and librarian credentials?

H02: There is no relationship between teacher and librarian collaboration levels and teacher content area, school classification, school size, and librarian credentials.

RQ3: What is the reported experience of collaboration between high school teachers and school librarians from the teacher perspective?

Discovering the general perceptions teachers hold of their student IL skills competencies and gaining insight into the level of collaboration that teachers report having with librarians will provide valuable data that educators and policy makers can utilize to make sound efforts informing policy, funding, and curricular decisions to support students in developing critical IL skills competencies.

The purpose of this chapter is to engage in an exposition of discoveries made regarding teacher perceptions of student IL skills competencies and levels of collaboration between teachers and librarians. The theories of Vygotsky and Kuhlthau are used to frame the discussion. This chapter also engages in a discussion of implications for professional practice for educators, public policy for policymakers, and provides recommendations for further research in this area.

Summary of the Results and Discussion for Educators and Policy Makers from Research Question 1

Research question 1 was: "Is there a significant relationship between teacher perceptions of student IL competency skills and teacher content area, school classification, school size, and librarian credentials?" Survey responses from teachers in the Mountain West states of Idaho, Montana, Nevada, Utah, and Wyoming indicate a range of responses among teachers regarding the IL competency skills possessed by their students. Teachers who participated in the survey were asked to consider the IL skills of their students using the five levels from the ACRL (2015)

IL framework which articulates to the steps of the Information Search Process (Kuhlthau, 1993, 1996). The five IL skills levels of the ACRL map to the six stages of the Information Search Process as seen in Table 16.

Table 16

ISP to ACRL Framework Articulation Table

Information Search Process	ACRL Framework
Initiation Selection	Identifies and Addresses Information Need
Exploration	Accesses Information Effectively and Efficiently
Formulation Collection	Evaluates and Thinks Critically About Information
	Uses Information Effectively for a Specific Purpose
Presentation	Uses Information Ethically and Legally

Note: Data from ACRL (2015) and Kuhlthau et al. (2008)

Primary Teaching Discipline

Overall, participants rated their students' IL skills competencies in the 'satisfactory' to 'good' categories. This finding differed from Dubicki (2013), who found that college faculty overall rated the IL skills competency of their students across the five ACRL levels at the 'poor' to 'satisfactory' levels. For the initial IL skills competency category of IDs and Addresses Information Need, the majority of teachers rated the IL skills competencies of their students as either 'satisfactory' or 'good'. Teacher perceptions moved slightly higher for Accesses Information Effectively and Efficiently. The IL skills competency ratings dipped for the third and fourth levels of Evaluates and Thinks Critically About Information and Uses Information

Effectively for a Specific Purpose. While these ratings have the same percentage of the total responses for each category split between 'satisfactory' and 'good', it should be noted that 20.9% of teachers rated their students as 'good' for the Evaluates and Thinks Critically About Information, a percentage that dropped noticeably to 17.4% for Evaluates and Thinks Critically About Information. The category of Uses Information Effectively for a Specific Purpose also had the highest number of teachers choose 'excellent' of any IL skills competency category. This could be indicative of how 'information' is understood within disciplines.

Teachers provided the highest average scores across for the entry-point IL skill: IDs and Addresses Information Need. It should also be noted that 25.2% ($n = 29$) of responses to this IL skill competency level perceived the ability of their students to identify and address an information need at the 'good' to 'excellent' level. Though it should be noted that the largest percentage of these responses ($n = 27$, 93.1%) were in the 'good' category and other Student IL skills competency rating responses in higher order IL skills had more responses of 'excellent': Uses Information Effectively for a Specific Purpose ($n = 5$) and Uses Information Ethically and Legally ($n = 3$). These results correlate with the results obtained by Dubicki (2013) in their study of higher education faculty perceptions of the IL skills competency possessed by their students. In that study, 41% of the participating college faculty indicated that they perceived the IL skills competency of students in the 'good' and 'excellent' range.

When it came to perceptions of student IL skills competency for the Accesses Information Effectively and Efficiently, teachers in the present study were generally satisfied with the IL skills competency of their students. This level of IL skills competency is aligned with the Exploration level of the Information Search Process identified by Kuhlthau (1993). There is no other comparable research on K-12 teacher perceptions of student IL skills competency so

direct analysis across studies is not achievable. Comparison with related studies is possible. Research into the perceptions of college faculty on the IL skills competency of their students found that over 60% of survey participants thought their students possessed satisfactory/good IL skills when it came to the ability to access information effectively and efficiently (Dubicki, 2013).

Research by Correll (2019) found that school librarians, educators with expertise in the teaching and assessment of IL skills competency, were concerned about the ability of students to access information in an effective and efficient manner. Correll's research also revealed that librarians were concerned about the lack of IL skills possessed by teachers. If teachers lack sufficient IL skills, they are not in a position to accurately assess student IL skills competency, even if they express personal perceptions regarding student IL skills competency. Teachers in the Humanities provided the highest rating of the IL skills competency of their students at this level, with ELA teachers coming in third. Since ELA teachers typically teach research skills associated with library research (Common Core State Standards Initiative, 2009), ELA teachers' perceptions of their students IL skills competency should be reasonably expected to be the most reflective of the actual IL skills held by students.

Teacher perceptions of student IL skills competency based on primary teaching discipline for Evaluates and Thinks Critically About Information aligns with the Formulation and Collection phases of Kuhlthau's Information Search Process (1993, 1996) where the information seeker reflects on the value of the information collected and considers the information seeking processes utilized up to the current point. Teacher perception ratings were slightly lower overall than for the IL skills competencies measured at the first two levels. This was also the level of IL skills competency that teachers rated lowest overall. Humanities teachers expressed the highest

level of satisfaction with student IL skills competency at this level, which was followed by the perceptions of ELA teachers. Math/Science teachers perceived the lowest IL skills competency in their students at the third level of IL skills competency, while teachers in the Other category expressed perceptions of student IL skills competency slightly higher and still within the range below 'satisfactory'. The downward trend of teacher perceptions of student IL skills competency for the first level (IDs and Addresses Information Need) to the second level (Accesses Information Effectively and Efficiently) indicates the progressive nature of the information seeking process. The skills build on one another and support the information seeker as they move through the information search process. The level of competence at a lower level has an impact on the competence of the next level.

The fourth level of IL skills competency, Uses Information Effectively for a Specific Purpose, moves into the sixth stage of Kuhlthau's Information Search Process, 'presentation.' This is the stage of the Information Search Process where information is directed at meeting a particular need such as supporting a thesis. Teacher perception ratings were slightly higher overall than for the IL skills competency for the prior level, Evaluates and Thinks Critically About Information. This is similar to perceptions of student IL skills competency shared by faculty by Dubicki (2013), where nearly 80% of college faculty surveyed perceived their students to have either 'good' or 'satisfactory' IL skills when it came to evaluating and thinking critically about information, a marked increase from the 67.23% of 4-year faculty and 41.67% of 2-year faculty for the preceding level of Evaluates and Thinks Critically About Information. Humanities teachers again expressed the highest level of satisfaction with student IL skills competency at this level, which was followed by the perceptions of ELA teachers. Math/Science teachers perceived the lowest IL skills competency in their students at the third level of IL skills

competency, while teachers in the Other category expressed perceptions of student IL skills competency slightly higher at 'satisfactory'.

The uptick in teacher perceptions of student IL skills competency for the third level (Evaluates and Thinks Critically About Information) is intriguing. The skills build on one another and support the information seeker as they move through the information search process. The level of competence at a lower level has an impact on the competence of the next level. It is logical to expect a downward trend as the level of skill needed to maintain competence throughout the information search process increases. Still, teachers in the present study rated their students' IL skills competency higher than the ratings for the prior level. This may say more about teacher ability to evaluate student IL skills competency than the actual skills possessed by students because of the IL skills teachers possess or because of curricular designs that lead teachers to favorable perceptions of student IL skills (Correll, 2019).

Teacher ratings for the final level of student IL skills competency perceptions, Uses Information Ethically and Legally, also aligned with the sixth stage of Kuhlthau's Information Search Process (1993, 1996), 'presentation'. At this stage of the Information Search Process. The information user shares the information they have gathered in some fashion. The interest at this level is the use of information in a manner that is ethical and lawful. In a school context, generally means the avoidance of plagiarism, which is primarily the domain of ELA teachers, who are tasked with teaching research skills. Teacher perception ratings were slightly higher overall (2.20) than for the IL skills competency for the prior level, Evaluates and Thinks Critically About Information. This resulted in a higher rate of perceptions of student IL skills from teachers rating their students' IL skills competency in the 'satisfactory/good' range (77.63%), than the college faculty surveyed by Dubicki, who perceived their students to have

either 'good' or 'satisfactory' IL skills when it came to using information ethically and legally at a maximum of 67.05% for 4-year college faculty and 57.22% for 2-year college faculty.

ELA teachers reported the highest level of satisfaction with student IL skills competency at this level (2.42), which was followed by the perceptions of Humanities teachers. Teachers in the Other category reported the lowest IL skills competency in their students at the fifth level of IL skills competency, while Math/Science teachers expressed perceptions of student IL skills competency slightly higher at 'satisfactory'. These findings seem to indicate results similar to those of Correll (2019) where the results say more about the lack of teacher ability to accurately rate students IL skills competency than about the skills actually possessed by the students. Teachers may express a perception of skills while not having training or curricular intersections where IL skills are developed.

School Classification

Teacher perceptions of student IL skills competency was also considered with the lens of school classification. The U.S. Census Bureau (2022) classification levels of 'rural' and 'urban' were used for this study to differentiate between schools in different population centers. Survey participants were split nearly evenly between rural and urban. The average teacher ratings for student IL skills competency based on school classification hovered in the lower were just above the mean. Teacher ratings of student IL skills competency based on school classification were higher for urban schools rather than rural schools on three levels: IDs and Addresses Information Need; Uses Information Effectively for a Specific Purpose; and Uses Information Ethically and Legally. Teacher ratings for two IL skills levels were effectively tied for Accesses Information Effectively and Efficiently and for Evaluates and Thinks Critically About Information. The perception of student IL skills competency based on school classification is very average, with

no clear indication that one group of teachers perceives an overwhelming strength in IL skills in their students.

No literature was found that compared the IL skills, either measured or perceived, for teachers or students in rural and urban areas. Teacher perceptions are relatively stable between those who teach in schools considered urban and those who teach in rural areas. The comparable teacher perceptions of student IL skills competency between these two groups of teachers could be an indication of the influence of the perceived skills of the students, so-called digital natives, or some other factor, such as the training the teachers received. It is also possible that the size and location of rural schools creates environments where the teachers are more likely to interact and work with school librarians, as opposed to more rigidly structured urban schools that tend to be larger in size, thus not providing the opportunities of interaction with other educators or chances to get to know students. This factor was not statistically significant.

School Size

School size was the third factor considered for analysis of teacher perceptions of student IL skills competency. Of the 75 participants who responded to the question about school size, most (44) reported they worked at large schools with student populations over 1,000. This was more than the combined numbers of teachers from small schools of 500 students or under (18) and medium schools with 500 to 1,000 students (13). This imbalance may have had an impact on overall teacher ratings of student IL skills competency.

While teacher perceptions of student IL skills competency based on school size did not reveal any statistically significant results, an intriguing result presented itself during analysis of the data: Teachers who reported working at medium-sized schools with student populations between 500-1,000 consistently reported the highest levels of perceived student IL skills

competency. Educators from medium-sized schools reported a group high student IL skills competency of 2.46 for two IL skills levels: IDs and Addresses Information Need (the first level) and Uses Information Effectively for a Specific Purpose (the fourth level). These same educators rated their students' IL skills competency at 2.31 for two other levels: Accesses Information Effectively and Efficiently (the second level) and Evaluates and Thinks Critically About Information (the third level). It should be noted that the rating on Accesses Information Effectively and Efficiently was only slightly higher for teachers from medium-sized schools than for teachers from large schools. The rating teachers from medium-sized schools assigned to student IL skills competency for the fifth IL skills level, Uses Information Ethically and Legally, slightly higher than reporting by teachers from large schools.

This consistency found among teachers from medium-sized schools leads to questions about what might be influencing the elevated student IL skills competency perceptions in this group. Some research on school size has observed slight negative impacts on student achievement as school size increases (Egalite & Kisida, 2016). No significant effect was detected by statistical analysis, so the effect in this case, if existent, is slight. Additionally, any effect might have been masked due to the size of the large school group, which, at 44, was over three times the size of the medium school group. Any interpretation should be made with this caveat in mind.

Librarian Credentials

Librarian credentials was the final factor considered in conjunction with teacher perceptions of student IL skills competency. This factor has a direct bearing on the theoretical framework of Vygotsky's (1978) Zone of Proximal Development (ZPD) and Kuhlthau's Information Search Process (1993, 1996) that underlies this study. If an appropriately educated

and credentialed librarian is not available to support instruction, either in collaboration with a classroom teacher or by some other method of providing IL instruction, the opportunity for a student to experience appropriately guided support during the critical times when they are in the ZPD as it relates to engaging with activities associated with the Information Search Process and will miss out on developing IL skills competency.

The group was split into library staff with professional credentials and those without professional credentials, from the perspective of the survey participants. Most of the teachers (53) reported their library staff, which include part-time and full-time library categories, were professionally certified. Teachers who reported library personnel who were not professionally certified, which consisted of volunteer, part-time and full-time library staff, made up the rest of the group (22). There was only one volunteer library staff member reported by survey participants.

The research literature is clear that IL skills are critical 21st century skills that students need to actively engage with in order to learn (Correll, 2019; Phillips & Lee, 2019). Teachers who reported having library personnel who possessed a professional librarian certification reported student IL skills competency that was lower than teachers who stated their school librarian was not professionally certified in three out of five IL skills levels. Teachers with certified library staff at their school reported higher student IL skills competencies for IDs and Addresses Information Need, Accesses Information Effectively and Efficiently, and Evaluates and Thinks Critically About Information. Oddly, at the higher levels of IL skills, the ratings reversed and teachers indicated higher student IL skills competency ratings when library personnel were not professionally certified.

This runs counter to findings in the research literature. IL skills are taught most effectively by appropriately educated library staff working in collaboration with other educators for a variety of reasons such as lack of preservice training in IL (Asselin & Lee, 2002; McNelly & Harvey, 2021; Shannon et al., 2019) and lack of the vocabulary to needed to guide student IL learning (Stockham & Collins, 2012). Additionally, Farmer and Phamle (2021) found a significant correlation between schools with a librarian who was at least part-time and student performance in their first year of post-secondary education. It seems logical that teachers at schools with properly resourced libraries and prepared librarians would have the highest perception of their students' IL skills competency, along with heightened opinions about their students' academic performance by other metrics. Teachers who did engage in collaboration with librarians on IL instruction for their students benefited from professional interaction (Hattani, 2019; McNelly & Harvey, 2021). In general, there is a positive connection between the presence of school libraries, and the librarians who manage them, and student academic success (Lance & Hofschire, 2012; Pasquini & Schultz-Jones, 2019). However, that was not confirmed by this study. This is concerning because one is left to wonder if the teachers have an accurate perception of the IL skills possessed by their students, or if they have a false sense of their students' IL skills competency because the students are 'digital natives' who were born after the rise of powerful search engines such as Google, raised on smart devices, and project a high level of confidence in their competency regarding all things technological (Al-Qallaf & Aljiran, 2021).

Conclusions

Teachers perceive a range of perceptions of the IL skills competencies possessed by their students. The overall perception of student IL skills competency is not impressive. These perceptions can be influenced by various factors, including lack of teacher awareness of IL

concepts or vocabulary, teacher familiarity with students and their specific needs as learners, teacher access to educational resources, and student confidence that is interpreted as competence. The most intriguing conclusion centers on the impact of school size on teacher perception of student IL skills competency. The results indicate that small schools might offer an advantage to teachers in the realm of knowing their students, even if other factors at small schools such as limited resources reduce the possibility of teachers addressing the IL skills competency needs of students. Teachers from different teaching disciplines have varying perceptions of student IL skills competency. Teachers also reported student IL skills competencies in relation to librarian credentials that are counter to what is expected, with higher perceptions of student IL skills competency reported at the higher levels of collaboration with library staff that appear to be less qualified to engage in collaboration. This could be an effect of weak relationships between teachers and school librarians and an associated limitation of the qualifications and skills the school librarians have to offer.

Recommendations for Educators, Administrators, and Policy Makers

Increase Teacher Understanding of IL Concepts

The student IL skill competencies are perceived by teachers in the study to be at acceptable levels, since most teachers who participated in the study rated their students' IL skills at the satisfactory level or above. The reasons for these ratings are unclear. Research into teacher understanding of IL concepts indicates that teachers customarily are unfamiliar with IL as a concept, do not actively teach IL skills, receive little pre-service training and minimal professional development in IL, and generally lack an awareness of IL concepts in an active sense. Professional development sessions with a librarian, either from the school, district, or from a qualified external instructor could increase teacher understanding of IL concepts.

Teach Information Literacy Across the Curriculum

Teachers in the study report that their students generally possess acceptable IL skills competencies. ELA teachers are most associated with the teaching of IL skills, or research skills, as part of their curriculum. Yet teachers in other disciplines, such as the Humanities, reported higher levels of student IL skills than ELA teachers in several instances. Math/Science teachers reported the lowest IL skills competency for their students. According to the research, some possible reasons for these variations in teacher reported perceptions could be because of a lack of teacher training in IL, absence of coverage in the curriculum, or an acceptance of student IL skills competency based on their exposure to and use of technology. Constructivist learning theory proposed by Vygotsky, which includes the concept of the Zone of Proximal Development, where learners are most receptive to learning gains, supports the teaching of IL skills in this manner because it brings teachers and librarians together to engage students in the learning process. Teaching IL across the curriculum is one way to ensure adequate moments of learning opportunities for students within a Constructivist context.

Support Professional Staff Relationships

School leaders need to provide opportunities for teachers and to get to know other staff in their buildings, including part-time staff, which might include library staff who can be valuable educational colleagues. While the measurement of librarian factors focused on credentials only due to number of responses and perceived student IL skills competency, teachers and librarians could benefit from getting to know each other as educational professionals supporting the same students. Library staff, whether certified/not certified or part-time/full-time, could benefit from interaction with teachers in professional settings such as professional development workshops or

lighter activities. The meetings could occur during times that are convenient for all staff, which will take buy-in and coordination from administrators.

Ensure School Libraries are Properly Staffed and Funded

Most of the teachers who participated in the survey were from schools with full-time, professionally certified librarians. That is more than all the other categories of library staffing combined. And teachers at schools with full-time librarians, groups with the largest representation in the survey, expressed high perceived levels of student IL skills competency. The presence and support that comes from having full-time staff dedicated to providing library services is a valuable and important educational resource in the development of student IL skills competency, a critical 21st century skill.

Summary of the Results and Discussion for Educators and Policy Makers from Research Question 2

Research question 2 was: "Is there a significant relationship between teacher and librarian collaboration levels and teacher content area, school classification, school size, and librarian credentials?" Collaboration between teachers and school librarians has been observed to increase mutual appreciation for the unique skills possessed by teachers and school librarians (Montiel-Overall, 2005). Teacher and school librarian collaboration has been shown to improve student learning outcomes (Kammer et al., 2021; E. A. Lee & Klinger, 2021; Merga et al., 2021). Active collaboration between teachers and school librarians, beneficial as it is to professional relationships and student learning, must be actively and intentionally cultivated (Lowe et al., 2020; Soulen, 2021).

Survey responses from teachers in the Mountain West states of Idaho, Montana, Nevada, Utah, and Wyoming indicate a range of responses among teachers regarding level of

collaboration between teachers and librarians. Participant attrition was observed for the TLC portion of the survey, with a lower number of participants who completed this portion of the survey. Due to the decrease in participants for the TLC portion of the survey, the category "Primary Teaching Discipline" was collapsed into three groups.

For the purposes of teaching information literacy and providing the scaffolding necessary to provide the level of support at the time of need, the Zone of Proximal Development (Vygotsky, 1962), where students are receptive to receiving the help from a teacher as they move from what they can do on their own to what they can do with some assistance. When teachers work with school librarians as valued educational equals, as collaborators, this provides opportunities for the students to gain valuable knowledge and skills. The lowest level of collaboration, coordination, brings students into proximity with a librarian for lower-level and lower risk interactions such as library visits, events, or extracurricular activities. It forms the basis for students and teachers having a relationship with the school librarian so there is potential to engage in supportive learning environments. This in turn supports the next level of Teacher and Librarian Collaboration, Cooperation, where teachers work with school librarians to build their capacity to teach IL skills and might even invite the librarian to help teach these skills. As the level of Teacher and Librarian Collaboration increases, the level of support for student learning and the construction of their IL skills increases. Conversely, as the level of Teacher and Librarian Collaboration decreases, the opportunities for students to access the support of teachers and librarians to move from what they already know to what they do not yet know decreases. The process continues as the Teacher and Librarian Collaboration is the critical interaction between educators and students that facilitates students' abilities to construct knowledge about IL concepts and build their IL skills competency.

Overall teacher reports of collaboration indicated that Cooperation, the second level of collaboration, was the level with the highest participation rate. The overall rate of Cooperation reported by teachers from all three groups was situated between the 'occasionally' and 'frequently' levels of collaboration. Coordination came in the second position of collaboration with an overall rate just below the reported level of Cooperation. The rate of participation at the levels of collaboration requiring more time, effort, and trust, a key factor of increased collaboration (Anggreini & Mutia, 2022), were observably lower overall and decreased marginally from Integrated Instruction to the highest collaborative level of Integrated Curriculum.

Primary Teaching Discipline

The survey results indicated a statistically significant difference between the TLC composite scores between the teachers in the ELA group compared to teachers in the Other group, which included the teaching areas of Math/Science/Career Technical Education/Special Education. ELA teachers consistently rated their level of collaboration with school librarians higher than teachers in other disciplines. Teachers in the Humanities, which consisted of History/AP History/Humanities, rated their level of collaboration with librarians in the middle of the three groups for all but one level, where the rating for that group was lowest: Coordination. Coordination is the only level of collaboration for which statistical analysis is valid due to violations of assumptions of normality.

Teachers in the ELA group reported a high level of collaboration with librarians for Coordination, Cooperation, Integrated Instruction, and Integrated Curriculum. The lowest score reported by ELA teachers was for Integrated Curriculum, the collaboration level with the highest degree of collaboration between teachers and librarians. Teachers in the Humanities category

reported the highest level of collaboration at the Cooperation level and lowest at the Coordination level. This represents an interesting switch from what is considered the level of collaboration that is most transactional, Coordination, which customarily has the highest level of teacher uptake because it is low stakes and builds success (Montiel-Overall, 2005, 2008).

ELA and Humanities teachers both reported higher rates of Cooperation than Coordination. This contributed to the higher overall degree of Cooperation. The increased level of Cooperation when compared to Coordination could be driven by a variety of factors from administrative support (Stewart & Deans, 2020), to the experience level of the teachers, which was heavily represented by teachers with 6 years of experience or more. Only five (19%) of the teachers who completed the TLC survey questions had five years or less of teaching experience, which greatly dilutes the reported collaboration levels of early career teachers, whose ability to collaborate with librarians or understand the need for collaboration with librarians, might be limited due to their relative inexperience. It is possible that more experienced teachers focused on high return educational activities and interactions with school librarians that elevated the baseline for collaboration to the Cooperation level.

Levels of collaboration revealed clearly visible differences between teachers from different teaching disciplines at the higher levels of collaboration represented by Integrated Instruction and Integrated Curriculum. ELA teachers reported much higher levels of collaboration at both levels, with the level of collaboration at the highest level of collaboration, Integrated Curriculum, only slightly lower than ELA teachers reported for Integrated Instruction. It is clear that ELA teachers are engaging in more collaboration with school librarians than their counterparts in other disciplines. ELA teachers also were much more heavily represented in the survey, which could be an indication of their interest in and commitment to the concept of

collaboration, especially with the school librarian. Humanities teachers, which included history teachers, were the group of teachers with the next highest reported level of collaboration with school librarians. Teachers in the Other category, which included a high representation of math/science teachers in the small group of seven (7) participants. Given the low collaboration scores, teachers from the Other category demonstrate an unexpected level of interest in the topic. Though it should be noted that teachers in the Other category did report a substantially higher level of collaboration at the Coordination level than Humanities teachers. Collaboration with school librarians is happening across disciplines, though the collaboration is uneven and difficult to examine due to the low number of participants in the study who completed the TLC portion. Still teachers were motivated to respond to the TLC questions, which indicates a degree of willingness to engage with the topic.

School Classification

Statistical analysis did not reveal any significant relationships in collaboration between teachers and school librarians based on the factor of school classification, which was split between urban and rural designations. The groups were split roughly in half between urban (n=14) and rural (n=13) schools. Meta-analysis of successful collaboration events between teachers and school librarians, while thorough, provided scant information about the experience of collaboration in when considered within a lens of school classification of urban or rural (Kammer et al., 2021). Teachers in the Mountain West did exhibit differences between schools located in rural and urban areas.

While differences were not statistically significant, teachers from urban schools reported higher levels of collaboration with school librarians by over two composite points for each level of the TLC scale. Collaboration by school classification followed the same pattern as that found

during analysis of collaboration by primary teaching discipline: Cooperation, the second level of

the TLC scale, presented the highest score for both groups and the highest score for teachers

from urban schools (and a tie for first for Coordination with teachers from rural schools);

Coordination, the first level of the TLC scale and the level of collaboration requiring the least

investment, had the second highest score (tied for first with rural teachers); this was followed,

predictably, by Integrated Instruction and Integrated Curriculum.

This order runs counter to the findings of research into teacher collaboration that pointed

to the time needed to foster and realize beneficial collaborative relationships as one of the main

barriers to collaboration (Leonard, 2002, 2003). If this is the case, levels of collaboration that

require the least amount of time and effort should show the highest participation rates. The

expected progression of teacher and librarian collaboration, if it is an active concern in a school,

should be: Coordination, Cooperation, Integrated Instruction, Integrate Curriculum. The

preference of teachers to engage in Cooperation over the entry-level collaboration activities in

Coordination could be an indication that teachers assign more value to students at the second tier

of the TLC progression than the first. If teachers do not have enough time to do to engage in all

of the collaborative activities with school librarians they could possibly want, it is reasonable

that teachers would pick the level of collaboration with a school librarian that would yield the

biggest benefit to their students (Montiel-Overall, 2008).

The level of collaboration reported by teachers from both classifications of schools

represented wide ranges. Several teachers from urban schools (n=8) reported levels of

collaboration that reached the zenith score of 24. No rural teacher rated their level of

collaboration at the top rating of 24. The highest level of collaboration reported by rural teachers

was 23 (n=2). Rural teachers also reported more scores of 6, the lowest composite score, than

teachers from urban schools. The number of extremely low scores of 6, which equates to "never" for collaboration, was highest for rural teachers on every level of the TLC. Rural teachers are unable to collaborate with school librarians at rates much higher than urban teachers. This indicates a noted variance between the urban and rural teachers. The difference could be based in the resources available to teachers in urban schools. Teachers in rural schools are likely to face several challenges unique to their context, from various levels of isolation to underfunded facilities and teacher turnover (Hill, 2015).

The levels of collaboration on the TLC reported by teachers from both types of school classification were not stellar. The high score of 14 only represents a level of collaboration half-way between "Occasionally" and "Frequently." Put another way, a score of 14 is 8 points higher than the lowest score of 6 (all responses "Never") and 10 points lower than the maximum score of 24 (all responses "Most Frequently"). Teachers in both rural and urban schools in the Mountain West who report their engagement in collaboration with school librarians are, at best, only doing so somewhat frequently. At the least, they are collaborating at a level between "never" and "occasionally".

School Size

Analysis by school size did not produce statistically significant results. Due to the reduced numbers of participants who completed the TLC portion of the survey, the school size category was compressed to two variables: Small/Medium Schools and Large Schools. One group, teachers from Small/Medium Schools, those schools with student enrollments under 1,000, reported the highest levels of collaboration across the TLC progression. Teachers from small and medium schools reported a higher rating of collaboration at the Coordination level than measurements at the rural/urban level. However, teachers in the large school category did

register individual composite TLC scores than did teachers from small/medium schools. Participants from large schools reported scores of 24, the maximum score, eight (8) times, while teachers in small/medium schools did not report a single maximum score. The highest scores from rural teachers were two scores of 23. Conversely, teachers from large schools most frequently reported "never" as a level of collaboration on the TLC scale, reporting composite scores of six (6) a total of 22 times.

Teachers in large schools, then, which might be considered flush with resources such as technology, updated buildings, and adequate staffing, are still subject to the isolating factor of the teaching profession and other job demands that lead to a lack of satisfaction in their profession and burnout (Hughes, 2001; Li & Yao, 2022). Large schools, by their nature, require more prescription in curriculum and building organization in order to manage the scale of the educational enterprises. These factors limit the opportunity for collaboration with other educators, including school librarians. This could account for the frequency of "never" responses on the TLC scale for teachers from large schools. Additionally, responses from teachers at small to medium sized schools could be explained by the smaller scale of these schools and the needs imposed by schools on teacher behavior in order to meet educational obligations such as covering for other teachers. Smaller schools are not necessarily better at facilitating or supporting collaboration between their educators, but the realities of the challenges faced by smaller schools create conditions that produce collaboration as a by-product.

Librarian Credentials

Analysis of teacher and librarian collaboration based on librarian credentials as reported by teachers did not find a statistically significant relationship between teacher and librarian collaboration and librarian credentials. The category of librarian credentials was collapsed into

two categories due to small number of participants who completed the TLC portion of the survey and the demands of the MANOVA statistical test: Not Certified and Certified. The majority of teachers reported that the library staff at their school possessed professional certification (n=20), with the rest reporting their school library staff were not certified (n=7). Teachers who reported the library staff as being certified were more likely to report very low ratings of collaboration on the TLC scale across the four levels compared to teachers who reported non-credentialed library staff (n=20) when compared to teachers with non-certified library staff who reported "never" engaging in collaboration with their librarian eight (8) times. High levels of collaboration, as indicated by a composite score of 24 (which indicates scores of 4 "Most frequently" on all TLC questions frequency questions) were most prevalent among teachers who reported certified library staff.

This is unusual. The definition of collaboration presupposes the potential for a working relationship between educators who are professional peers (U.S. Department of State, 2017) and shared goals and visions focused on student progress across the range of the curriculum (Montiel-Overall, 2005). The possibility of this type of relationship seems unlikely if one participant is a teacher with a professional certification and the other is non-certified member of the library staff, even if the library staff member is valued as a person. Classified staff are not typically viewed as having the same level of responsibility as classroom teachers. Teachers in the current study reported lower frequencies of collaboration as the level of collaboration, and the trust and effort that increase with each level, increased. More teachers reported collaboration at the Coordination and Cooperation levels than at the higher collaboration levels of Integrated Instruction and Integrated Curriculum. The requisite conditions of collaboration between teachers and librarians necessary to support the development of student IL skills competencies

during the Information Search Process (Kuhlthau, 1993, 1996) within a constructivist framework that fosters student movement through the ZPD (Vygotsky, 1978) seem unlikely to materialize given the reported declines in TLC.

Conclusions

Teacher responses to the TLC portion of the survey indicated differences between collaboration with school librarians across disciplines. Collaboration, which is built over time on familiarity and trust, is undermined if the relational foundation upon which it relies is weak. Teachers reported levels of collaboration with school librarians that were on average only occasional with most collaboration occurring at the formative levels of collaboration. Teacher collaboration with librarians was stronger in some disciplines compared to others. This indicates a commitment to collaboration, and perhaps a more comprehensive understanding of what is meant by collaboration in a teacher and school librarian context, in some disciplines than others. It is difficult to investigate the effects of primary teaching discipline on collaboration with school librarians due to the small number of participants and the collapsing of the category to meet statistical test requirements, but it is worth noting. The effect of school classification and school size are intriguing. Teachers from urban schools are more likely to report collaboration activities with school librarians and teachers from rural schools were more likely to never collaborate with a librarian. It is not known if rural teachers report the lower levels of collaboration with school librarians because their schools do not have a dedicated school librarian or if there are other factors preventing collaboration with a school librarian.

Recommendations for Educators, Administrators, and Policy Makers

Provide Opportunities for Increased Relationship Building Between Teachers from All Disciplines and School Librarians

Teachers reported differences between their experiences of collaboration with school librarians across the various factors of teaching discipline, school classification, school size, and librarian credentials. The most noticeable differences were seen based on teaching discipline, with ELA teachers reporting significantly more collaboration with school librarians than Math/Science/Other teachers. This is not surprising, as ELA teachers are typically charged with teaching research skills and ensuring students meet identified standards in areas that can involve close work with a school librarian (Common Core State Standards Initiative, 2009). School librarians also have a positive impact on student learning outcomes (Haycock, 2007; Lowe et al., 2020). Collaboration is built upon a foundation of trust and respect, interpersonal conditions that take time and effort to develop. One way to begin laying the foundation is to include school librarians in faculty meetings and their contributions recognized. If teachers are going to develop the ability to truly collaborate and not just send students to the library every so often for a transactional activity or to check a mark on a box, they need to be provided with time to build the foundational relationships that lead to collaboration.

Encourage Collaboration Between Teachers and School Librarians Across the Curriculum

Once the foundational relationships are in development through increased interaction among the teachers and school librarians the next phase is the implementation of collaborative activities across the curriculum as relevant. Montiel-Overall (2005) used the example of a school librarian and a teacher engaged in deep levels of collaboration regarding teaching a unit on insects. Administrators and time are two of the biggest factors impacting collaboration (Leonard,

2003). Support for the pursuit of collaboration from school administrators can come in the form of professional development opportunities, regular departmental meetings that include the school librarian as an active participant, and the recognition of the importance of the library resources to the educational enterprise. School administrators can help remove other barriers to collaboration between teachers and school librarians by creating a school culture that is student focused and that emphasizes the importance of the expertise of school librarians to preparing students for life in the 21st century by fostering skills that are universal, promote student academic success (Farmer & Phamle, 2021; Pasquini & Schultz-Jones, 2019), and are therefore appropriate to teach in all disciplines.

Consult with Educators at Schools of Different Sizes and Different Areas to Aain Insights and an Appreciation for Policies and Practices that can Support Collaboration

One of the more interesting findings regarding the frequency of collaboration came not from a view through the lens of teaching discipline or librarian credentials, but from school classification and size. Schools in rural and urban areas offered curious results regarding collaboration worthy of additional investigation. Teachers in urban schools reported consistently higher levels of collaboration than teachers at rural schools. Reported levels of collaboration between teachers and school librarians at small and medium sized schools were consistently higher on average than for teachers at large schools. It is important to note that the term "rural" does not equate to small or medium-sized schools, indeed one of the teachers interviewed as part of the qualitative study works at a large rural school. The results regarding collaboration between teachers and librarians based on school size and classification point to site conditions that impact teacher interaction and the potential for collaboration. Teachers at large schools tend to have resources, including library resources, but because of the scale of the school, they do not know

their students, are encumbered with a prescriptive curriculum, and experience professional isolation (Hughes, 2001; Li & Yao, 2022). Small schools are not necessarily better than large schools, as they might be deficiently resourced, lack funding, and experience staffing pressures. Medium-sized schools could provide that sweet spot between being just big enough to have resources, sufficient funding, and just small enough that teachers know each other, their students, and their families. Reviewing the schools as whole units, both quantitatively and qualitatively, and getting to know the administrators and staff members, is a beneficial exercise that has the potential to increase professional fluency around teacher and librarian collaboration and how it does and does not work in various educational contexts.

Summary of the Results and Discussion for Educators and Policy Makers from Research Question 3

Research question 3 was: "What is the reported experience of collaboration between high school teachers and school librarians from the teacher perspective?" The most common experience of collaboration with school librarians reported by interview participants was in the none to extremely limited level. Four of the interviewees expressed levels of collaboration with a school librarian from not possible due to not having a librarian at their school, to collaboration not being relevant due to the interviewee's subject area being math or science, to collaboration being applicable in their context and developing but limited because of limited time and availability. The experiences of these four teachers are summed up in two sentiments, one that encapsulates the experience of teachers in disciplines where collaboration with a school librarian is customary, ELA and the Humanities, and one that speaks to the experience of teachers whose disciplines do not typically bring teachers into collaborative relationships with school librarians, Math and Science. Teachers in the first group, ELA and Humanities, adopted the position self-

sufficiency and reliance on their expertise as educational professionals as expressed in the sentiment: *"I'm my own librarian."* The other group of teachers, those who teach math and science, expressed views of collaboration with school librarians that were expressed in the statement: *"I don't work with my librarian at all."* Only one interviewee, an ELA teacher at a large rural school in Wyoming, reported levels of collaboration with a school librarian that were above a minimal or chance level and which the interviewee expressed with enthusiasm: *"My librarian rocks!"* The experience of collaboration, as shared by interviewees, ranges widely and for a variety of reasons.

The experience of teachers relating to collaboration with a school librarian, TLC, and their perceptions of their students' IL skills competency varied based on several factors that were expressed during interviews. First, was the presence of school librarians with whom teachers could collaborate. One interviewee, from a large and well-resourced high school in Utah, was able to make a clear assessment of her students' IL skills competency. This was not because of a high level of collaboration with the school librarian. The teacher had to shoulder the burden of teaching this critical skill within her teaching discipline because her school does not have a librarian. While the teacher is highly qualified and capable, this situation keeps students from developing their IL skills in different disciplinary contexts such as math, science, or ELA. It is impossible for teachers to collaborate with a school librarian if there is no school librarian.

Time was also another factor impacting teacher experiences of collaboration with a school librarian. When a school librarian is present and teachers perceive relevance in collaborating with the school librarian, the issue of time, both for preparation and active teaching, was a significant challenge for teachers. Teachers reported having little time to collaborate at all, even with other teachers in their departments. Collaboration involved quick

chats during passing periods, engaging with other teachers in professional learning communities, and interacting with disciplinary colleagues during weekly departmental meetings. Time pressures were shared by all of the interviewees, echoing a frequent condition found in the literature on collaboration between teachers and school librarians (Kammer et al., 2021; McKeever et al., 2017; Mertes, 2014).

Curricular requirements and the presence of student abilities related to content areas were also shared by the interviewees. The information shared by teachers during the interviews further enriched the results from the quantitative survey, in keeping with the explanatory sequential methodology. For example, the math and art teachers both expressed dissatisfaction and concern over the lack of content area abilities possessed by the students, skills they believe they should have learned much earlier. The need to move quickly through course content and help students meet standards is an impediment to collaboration in some content areas. This could help explain the lower scores from Math/Science and Other teachers on the Student IL Skills portion of the survey, which were especially notable at the three upper levels of the Student IL Skills levels. Conversely, student deficits can be a driver of collaboration in other content areas such as ELA and the Humanities, where teacher awareness of IL skills concepts is higher and teachers are actively engaged in at least some IL skills instruction. For example, the art teacher has increased collaboration with the school librarian at her institution because of a need to raise student performance on learning assessments required by the IB program.

Teachers of math and science shared experiences that indicated that school librarians were not relevant to their disciplines, which, while an accurate portrayal of the curricular realities, might also indicate that math and science teachers are not adequately prepared to teach IL skills (Crary, 2019; Cunningham & Williams, 2018). The opportunity for students to work on

IL skills within a collaborative environment between a teacher, the subject area specialist, and a school librarian where each educator has a clear understanding of their roles and responsibilities regarding IL instruction (Montiel-Overall, 2005, 2008, 2009a; Rinio, 2018; Stewart & Deans, 2020; Sturge, 2019). Robust collaboration is an important element in the development of IL skills as it supports learners at the moment of need as they move through the ZPD while progressing along the Information Search Process.

Teachers from schools in different settings described in the study, school classification (urban or rural) and school size (small/medium or large), shared experiences that fill in some of the questions from the quantitative survey. Three of the interviewees were from schools in rural areas and two were from schools located in urban areas. Of the three teachers working at schools in rural areas, one of them worked at a small school. Most of the interviewees worked at large schools and reported positive outlooks regarding the IL skills competency of their students while the one teacher from a small school reported concerns about the general academic progress of the students she works with and the IL skills of her students. The response from the interviewee from the small rural school in Montana, while only one case, does provide some understanding of the survey results, which showed rural teachers were generally less optimistic about their students' IL skills competency and also less likely to engage in collaboration with a school librarian: Teachers from small schools are more likely to know their students and their academic skills, but more likely to have fewer resources to meet the perceived academic needs of students. The intersection of school size or school classification and student IL skills was novel.

Interviewees also shared their experiences of collaboration through the lens of librarian credentials. Three of the teachers reported that their school librarian was professionally certified and spoke confidently about the abilities of the school librarians to perform their roles within the

school. This ranged from managing the school one-to-one laptop program to highly integrated team-teaching. The other teachers either shared that their school did not have a librarian, or they were not entirely sure about the credentials held by the librarian, though their value as a member of the school staff was affirmed.

The pedagogical theory of Vygotsky and the information theory of Kuhlthau that provide the theoretical framework for this study were cast in strong relief by the interviewees. The ELA teacher with the strong collaborative relationship with the active and engaged school librarian exemplified the best mix of the synergistic power of two educators working to support students through the learning process and at the ready to assist learners in developing their IL skills. Movement through the ZPD as students work through the information search process exhibited by research projects is facilitated by qualified educators. In other cases, collaborative support for the development of student IL skills competency is not possible because there is no school librarian, or the teachers do not see the relevance of collaboration with a school librarian.

Conclusions

The experiences of collaboration shared by interviewees are important when considered discretely and their power increases when considered in the context of the quantitative data. Interviewees expressed varying levels of staffing at their school libraries from the presence of qualified and engaged librarians to not having a librarian, or even a library, at their school. Teachers also related experiences of collaboration with school librarians and that those collaborations had a positive impact on student learning outcomes. Interviewees who were did not collaborate with school librarians, regardless of the reason, were not able to speak with as much confidence or richness of detail about the ways their students engage with the information search process as teachers who shared experiences of collaboration. This was true even when the

language used was not from the IL literature proper but used other terms for the same activities. School librarians are viewed as key educational collaborators by those educators who work with school librarians in supporting students through the learning process. All the interviewees expressed a need for continuing professional development in a general sense and about IL specifically. School size and school classification have an impact on collaboration between teachers and school librarians. Teachers who participated in the interviews came from schools of various sizes and from both rural and urban settings. The differences of the reported experiences from interviewees based on school size and classification are worth exploring further.

Recommendations for Educators, Administrators, and Policy Makers

Ensure Each School has an Adequately Staffed Library

Teachers who participated in the study reported less than frequent levels of collaboration with school librarians. The frequency of collaboration at the "never" level and which was reported across all levels of the TLC model, from low-effort Coordination to high-effort Integrated Curriculum, was revelatory. Teachers do not necessarily have the training, either pre-service or through ongoing professional development, to provide meaningful and beneficial instruction in IL skills. The literature is clear that properly staffed libraries, with credentialed librarians who are able to support the educational needs of students and effectively collaborate with teachers, are key educational components that facilitate successful student outcomes (Haycock, 2007; Lance et al., 2010; Lowe et al., 2020).

Help Make Librarians and Library Resources Visible

Interviewees made it clear that the libraries in their school, and the people who staff and manage them, are not always visible. This lack of visibility might mean that a school library does not exist at a school or that that the library is an underutilized resource at the school, a situation

that presented itself in response from interviewees. School libraries and librarians are valuable educational resources and partners. Administrators can ensure that school librarians and libraries are made visible by helping to foster professional relationships among their entire staff and encouraging teachers to engage in collaboration with school librarians. Administrators are influential in supporting library use and collaboration (Stewart & Deans, 2020) which promotes positive working environments for teachers (Copeland & Jacobs, 2017; Merga et al., 2021) but teachers must first be aware of their school libraries and librarians so the relationships can begin to form, and collaboration can develop.

Provide Professional Development Opportunities for Librarians and Teachers

Interviewees mentioned the lack of professional development opportunities available to them so they could learn about IL concepts and instructional strategies. Professional development on IL helps teachers learn more about the role that school librarians play in teaching this vital 21st century skill and reduces misunderstandings which can lead to more openness to collaboration (Kammer et al., 2021; Lowe et al., 2020; Montiel-Overall, 2008). Increased opportunities for professional development also elevate the ability of teachers to instruct students in IL skills development in the absence of a school librarian. The increased awareness of the need for IL instruction coupled with already heavy curricular demands on teachers has the potential to create demand from teachers for school librarians with whom to collaborate in teaching students IL skills.

Commit to Learning More About How Collaboration Occurs in Other Schools

The experiences of teachers varied across schools of different sizes and in rural and urban settings. For example, teachers at rural schools work in settings that may present more structural challenges (Hill, 2015), which lead to lower rates of collaboration than colleagues at urban

schools. Administrators and teachers can benefit from learning about different types of schools, how collaboration does or does not transpire, and how these factors influence the teaching of IL skills and teacher perceptions of student IL skills competency.

Conclusions

Information literacy is a critical skill that students need to be successful and functional individuals in the 21st century (Jones-Jang et al., 2021; T. D. Lee et al., 2020; Zurkowski, 1974), yet classroom teachers are neither comfortable nor prepared to teach IL concepts (Ben Amram et al., 2021; Cunningham & Williams, 2018; Shannon et al., 2019). School librarians are educational professionals who are uniquely qualified to teach and co-teach IL skills (Kammer et al., 2021; Lowe et al., 2020; Merga et al., 2021; Montiel-Overall, 2005, 2008), yet collaboration between school librarians and teachers does not occur for a variety of reasons (McKeever et al., 2017). Teachers from the Mountain West states of Idaho, Montana, Nevada, Utah, and Wyoming who participated in the study generally reflect the profile of teachers from the literature on collaboration with school librarians. Mountain West teachers perceive lackluster IL skills competency in their students and report less than frequent collaboration with school librarians. In multiple cases, teachers report never collaborating with a librarian. Teachers report time constraints, library capacity, and teacher practices as the primary impediments to collaborating with a school librarian. Teachers feel supported by the administrators at their schools. School administrators are influential in guiding the level of collaboration between the staff in their schools. School principals, teachers, and school librarians need to seek ways to build relationships and facilitate more collaboration between teachers and school librarians. Doing so will create educational situations where teachers and school librarians collaborate effectively to mutually support students as they seek to make meaning of their information-rich world.

Recommendations for Further Research

The study provides several areas of further research that should be considered. First, more information is needed regarding the teaching of IL skills in high schools in the Mountain West. This study relied on teacher perceptions of student IL skills competency, which, while informative, does not provide details about the actual IL skills possessed by high school students in the Mountain West. Assessments that measure IL skills do exist, but the largest and most accessible test, TRAILS (Hollis, 2018), is no longer available. A one-size-fits-all approach to assessing IL skills is a challenging proposition, as educators have different methods and criteria by which "information literacy" is understood and measured within their specific disciplines. Collaboration between teachers and school librarians would allow for the relevant educators to make informed decisions based on instructional aims and the needs of students.

Another area for further research is the experience of teachers in the Mountain West regarding student IL skills and collaboration between teachers and school librarians according to school classification. This study used the U.S. Census Bureau (2022) to determine population designations for schools of urban and rural. Teachers at rural schools, for example, face unique challenges (Hill, 2015) that may not be present in schools with different classifications. A refinement of categories that considers other designations such as suburban could help yield more relevant results. Understanding the specific needs, practices, and successes in IL and collaboration at schools based on their size could result in valuable insights. Additional research that focuses on student IL skills and collaboration at a single school site, for example, could be very helpful in understanding the factors that impact both elements.

Third, information about student IL skills and collaboration between teachers and school librarians in the Mountain West based on school size is important. Teachers from schools of

different sizes in the study reported different levels of perception regarding student IL skills competency and levels of collaboration with school librarians. One surprising finding was that a well-resourced, large high school in Utah, one that would be expected to have a robust and adequately staffed library, had no library and no librarian. The school size category had to be collapsed for analysis due to the low number of responses for the TLC portion of the survey from librarians as medium-sized schools. Detailed information from research that seeks input from school librarians, teachers, and students would help form a deeper understanding of the unique factors impacting student IL skills and collaboration between teachers and school librarians at each school size level.

Fourth, additional research is needed to develop and refine a shorter survey for measuring student IL skills competency and collaboration between teachers and school librarians. The attrition rate observed in the present study showed a substantial drop between survey starts and completions. A substantial number of participants who completed the IL skills portion of the survey did not respond to all of the questions on the TLC portion of the survey. Some could be accidental skips. Others could indicate survey fatigue or a perceived lack of relevance if, for example, teachers did not have a school librarian with whom to collaborate. It is possible that the two concepts of IL skills and collaboration, while appropriate to consider in a single survey, might need to be decoupled to achieve meaningful progress in the development of a new instrument, whether it be a survey or set of interview questions.

Fifth, the study revealed the need for more research into the role of school librarians in the advancing and supporting the development of IL skills development within the current educational context in the Mountain West, especially when considered within a lens of collaboration. School librarians are not immune to the impacts of societal pressures that are

being exerted against the educational system writ large. The position of school librarians has experienced representational decline in the Mountain West since 2009 (Kachel & Lance, 2024), creating an increase in the ratio of students and teachers to school librarians that impedes the formation of collaborative relationships. Additionally, the demands placed on teachers to reach learning outcomes, some of which are remedial, and time constraints as brought into stark relief by participants in the present study, do not bode well for the development of intentional and sustained collaboration between teachers and school librarians. More research is needed to understand the presence and effects of the complex systemic factors on school librarians, the work they perform within their given educational contexts, and their ability to collaborate with teachers in advancing student IL skills development.

Implications for Professional Practice

Information literacy skills are essential to the current and future success of students in the 21st century information economy (Atkinson & Thornton, 2021; Baird & Soares, 2020; Barry et al., 2021; Correll, 2019; Cunningham & Williams, 2018; Farmer & Phamle, 2021; Jones-Jang et al., 2021). Teachers are not adequately prepared to teach IL or collaborate with school librarians during pre-service training (Asselin & Lee, 2002; McNelly & Harvey, 2021) and do not receive adequate additional training on how to provide IL instruction (Ben Amram et al., 2021; Cunningham & Williams, 2018). Collaboration between school librarians and teachers, an essential activity between educators during which robust and pedagogically grounded IL instruction can occur, does not happen by chance (Kammer et al., 2021; Lowe et al., 2020; Merga et al., 2021; Montiel-Overall, 2010; Soulen, 2021). The pace of information growth and sharing is not slowing down. Intentional collaboration between school librarians and teachers, working within an educational environment that guides students in constructing their IL skills

competency as they move through the ZPD (Vygotsky, 1978) while navigating the various

phases of the ISP (Kuhlthau, 1996). It is imperative that educators – administrators, teachers, and

school librarians – work together as equals, collaborate, in supporting student development of IL

skills competency. By taking action to mitigate identified factors that impede the effective

teaching of IL skills and pose barriers to collaboration between teachers and school librarians,

educational leaders in the Mountain West can shape learning environments that encourage

collaborative relationships between teachers and school librarians and support students as they

learn IL skills that are vital to their success in the classroom and into the 21st century.

    First, school administrators in the Mountain West should evaluate their recruitment and

hiring practices regarding school librarians and the status of the physical library in their school.

In the case of district leadership, the focus should be raised to the larger district level and include

all library positions and schools. Student academic success and progress have been associated

with IL instruction provided by qualified school librarians (Lowe et al., 2020; Merga et al., 2021;

Montiel-Overall, 2007). It is not possible to provide IL instruction by a school librarian if there is

no librarian on staff either FT at the school or as an active consulting librarian at the district

level, as are utilized in some small districts such as those in Montana (Kachel & Lance, 2021a).

A not insignificant number of survey participants in the current study responded that they

"never" collaborate with school librarians. This could be because of factors that limit the ability

of the teacher or the school librarian to collaborate (e.g., scheduling, curricular demands, or lack

of awareness) or because there is simply not a school librarian with whom to collaborate.

Montana is the only state in the Mountain West that mandates the presence and funding for

school librarians (Kachel & Lance, 2021b). School funding formulas could necessitate making

tough budgetary decisions because adding staff is costly. Allocating or maintaining space for a

library when a school is crowded, and funds are tight can create uncomfortable situations for administrators. Ensuring that schools are provided with an adequate library and staffed by qualified librarians is one step to providing the support for IL skills development and collaboration that have been shown to have a positive impact on student learning outcomes.

Once the status of the library and the school librarian have been established, administrators should work to create an environment in their school or district that fosters the development of professional relationships between teachers and school librarians that provide the foundation for collaboration. Trust is an essential component in relationships that culminate in a collaborative arrangement and time is required to build trust (Anggreini & Mutia, 2022; Rinio, 2018). Study participants indicated levels of collaboration with school librarians that were generally low to moderate and on the lower level of collaboration, which demonstrates little time to build relationships. Small, intentional steps can help begin to build the relationships between teachers and school librarians. Administrators can ensure that school librarians are invited to and included in faculty meetings. This might mean arranging schedules so librarians are not tasked with duties such as detention or library monitoring at the same time as teacher meetings. School librarians could be asked to prepare and provide demonstrations of library resources or present on other library-related topics. Teachers interviewed as part of the present study recognized and valued their school librarians to varying degrees. An ELA teacher mentioned that the librarian regularly attends the professional learning community meetings at their school and shares information about library resources and other pertinent materials. The opportunity to see and interact with their school librarians in settings other than the library, if they see them at all on a regular basis, has the potential to begin laying the foundation for trusting professional

relationships that, with intentional support, can lead to collaboration that is student-centered and supportive of students throughout the learning process.

Concurrent with the provision of relationship-building opportunities between teachers and school librarians, administrators can encourage the teaching of IL skills across the curriculum. It is customary for IL skills instruction to take place in the context of the ELA classroom, as ELA teachers are officially tasked with teaching IL skills (Common Core State Standards Initiative, 2009). Research has demonstrated the need for robust instruction of Internet use throughout a student's primary and secondary educational experience to help prepare them for post-secondary education and life outside of a traditional classroom (Correll, 2019; Phillips & Lee, 2019). The connection between student success and school libraries is established in the research (Lance & Hofschire, 2012; Pasquini & Schultz-Jones, 2019). Guided Inquiry is one model of curricular integration backed by research (Gregory, 2018; Kuhlthau et al., 2015; Lance & Maniotes, 2020). Teachers who were interviewed as part of the study indicated that they would be open to working more with a librarian as relevant to their discipline and curricular needs. This is interesting because Guided Inquiry was mentioned by a science teacher interviewed as part of the study and who expressed little relevance for collaboration with a school librarian. Perhaps Guided Inquiry could provide the opportunity for collaboration in this situation. Math was even acknowledged as a discipline where students could benefit from collaboration with a school librarian if there was enough time to plan and implement the librarian's involvement with the lesson or unit.

Teacher awareness of student IL skills competencies were generally perceived by the study participants at acceptable levels. ELA and Humanities teachers rated student IL skills competencies higher than teachers in other disciplines. This result was not unanticipated, given

the teaching responsibilities of ELA teachers associated with IL concepts (Common Core State Standards Initiative, 2009). However, teacher awareness of IL concepts is not uniform and teachers come out of teacher education programs lacking exposure to IL concepts and even experienced teachers express lack of confidence to teach IL skills (Hattani, 2019; McNelly & Harvey, 2021). Since the survey used in the present study was based on perceptions rather than actual assessment of student IL skills competency, teachers might have reported inflated perceptions of student IL skills competency because students exhibit a high degree of confidence while possessing undeveloped IL skills (Baird & Soares, 2020; Saunders et al., 2017). Teachers who were interviewed as part of the study shared that they could teach students IL skills, but it would be beneficial to receive professional development or training on teaching IL.

Teaching IL skills across the curriculum presents an opportunity to meet this need to support teachers in this area. The integration of IL skills instruction can be achieved in several ways, which align with the four levels of collaboration between teachers and school librarians explored in Research Question 2 of this study. First, at the coordination level, IL instruction can include scheduled visits to the school library or structured visits to the classroom from a school librarian to share resources and provide basic information about the library. Such visits increase student familiarity with the library while also providing the opportunity for students, teachers, and the school librarians to form foundational relationships. Second, at the cooperation level, teachers can work with school librarians to locate materials to supplement and support the curriculum including the creation of online guides, coteaching lessons, and working with the librarian to find resources that can be used to help students learn IL skills. Third, at the integrated instruction level, teachers and school librarians can have scheduled time to work together on the scope and sequence of the curriculum and lesson plans so the school librarians can provide

support for activities that advance IL skills development. One example is including school librarians as regular attendees at department meetings or professional learning community (PLC) meetings, where they are recognized as professional peers and where clear objectives that advance instructional planning collaboration are specified. Fourth, at the highest level of collaboration, integrated curriculum, the school librarians can be deeply involved with the development of the scope and sequence of the curriculum across the school or, optimally, across the district, to integrate the teaching of IL skills in a programmatic manner that is regular, equitable, and consistent. At this level, school librarians work with teachers to systematically incorporate and evaluate the teaching of IL skills through regular interaction with teachers, inclusion of school librarians in the assessment of IL skills development, and review of IL skills instruction.

Inclusion of the topic of school libraries, librarians, collaboration, and IL concepts in teacher education and administrator certification programs. Teachers in the study reported a lack of exposure to the concept of IL during their teacher education programs, which is supported by research into teacher preparedness and confidence to teach IL skills (Asselin & Lee, 2002; McNelly & Harvey, 2021; Shannon et al., 2019; Stockham & Collins, 2012). As administrators engage with faculty members of teacher education and administrator certification programs, they should encourage these faculty members to include substantial information about IL skills, and collaboration with school librarians who are valuable collaborators in teaching IL skills, in the curriculum. Early exposure to the concepts of IL and of the benefits of collaborating with school librarians will provide a crucial foundation upon which teachers new to the profession can begin to form connections with school librarians and build collaborative relationships that support

students and help them construct IL skills competencies that will benefit them in school and well into their lives.

Reflections by the Researcher on the Study's Journey

The researcher in this study began the journey of researching this topic due to his concern as an academic librarian about the level of preparedness high school students possess for the rigors of academic work in college and the challenges students encounter that influence their decision to cross the bridge between high school and college. As an academic librarian at a small private liberal arts school in Idaho where faculty get to know the students, the researcher would observe students struggling to adapt and thrive in college. The librarians are available to assist students with their research, teach IL skills, and make efforts to get to know students. Still, the researcher noticed that most students only interacted with librarians at the transactional level of getting help finding specific items in the library and did not seek librarian support in navigating the process of searching for information. Oftentimes, these transactional interactions turned into impromptu reference consultations wherein the librarians would help students identify an information need and evaluate resources, processes which would be expected to have occurred prior to locating a specific book on the shelf.

Other students seemed to do just fine on their own and were able to use the library's resources effectively and efficiently. Still, the professors who teach and mentor students shared concerns about the IL skills possessed by students in a general sense. This left the researcher contemplating – What IL skills have high school students been taught, who is teaching these skills, and how have those skills been taught? The researcher sought to learn more about the IL skills students develop prior to graduating from high school and to engage with high school

teachers from all disciplines to form a more complete and nuanced understanding of the educators who are guiding students as they prepare to complete high school.

The results of this study generated a useful glimpse into the views of student IL skills competency and levels of collaboration between teachers and librarians at high schools in the Mountain West states of Idaho, Montana, Nevada, Utah, and Wyoming. The application of a mix of quantitative and qualitative methods interleaved to support the overall results and conclusions. The participant interviews, a change recommended by the committee at proposal defense, added a rich layer of detail and depth to the study that fills in areas unfilled by the quantitative data. The researcher is appreciative to the committee for advancing this change, which added an incredibly valuable facet to the study.

There are some changes the researcher would have made to the study. The instrument used was long. A shortened instrument could have lowered participant attrition, especially for the TLC portion of the survey, which was placed at the end of the survey. The survey was created by merging two surveys to create measure the two associated concepts of IL skills competency and collaboration between teachers and school librarians. The instruments were kept largely intact to maintain fidelity to the original instruments. The TLC results were processed into composite scores to supply one score for each of the four TLC frequency facets. It is possible that similar valid and reliable results could have been produced using just four deftly crafted questions, rather than the six questions used to measure TLC frequency in the study. Still, teachers who do not typically teach IL skills, math and science teachers, completed the entire survey. This demonstrates the importance of the combination of IL skills and collaboration between teachers and school librarians and to share their experiences. Additionally, the study focused exclusively on the classroom teachers, whose voices are not often sought in research involving IL.

Expanding the scope of the study to include perceptions from other stakeholders such as school librarians, students, or administrators would have provided an even richer set of experiences and perspectives upon which to analyze and reflect. Finally, the geographic scope of the study, while logical and appropriate, could have been expanded to include teachers from the entire United States. A shorter and more refined survey would facilitate delivery, data collection, and analysis at this scale and within the study's timeline.

This study does not exist in a silo that is isolated from the impacts of the social, political, and educational environment that surrounds it. School librarianship is at a critical inflection point. An extensive exploratory research project undertaken by Kachel and Lance (2024) known as The School Librarian Investigation Decline or Evolution (SLIDE) shows that school librarianship in the Mountain West is under duress. According to the report, 2021-22 school librarian FTEs have dropped substantially for all states for which data was available since 2009-10: Idaho (-75.8%); Montana (-1.5%); Utah (-15.2%); Wyoming (-53.7%). Montana, the state with the lowest overall decline in school librarian FTEs from 2009-2022, was the only state with state-mandated school librarians (Kachel & Lance, 2021b). Nevada did not report any data for school librarians for the 2021-22 reporting year. Data from the 2020-21 reporting year for Nevada showed a decrease in school librarian FTEs of -30.7%, a continuation of a trend present since 2009-10 (Kachel & Lance, 2024). In addition to reductions in school librarian positions in the region, school librarians have been subject to sustained vitriolic attacks and harassment in recent years, with 30% of high school librarians reporting cases of harassment (Ishizuka, 2023). Regionally, school and public librarians have not fared any better, enduring claims that they are harming children, receiving threats, and complying with legislation restricting access to library materials, some of which come with stiff penalties for librarians who run afoul of these new

censorship laws (Alfonseca, 2024; Hannon, 2023; Hanson, 2024; Marcetic, 2023; Natanson, 2023; Natanson & Kaur, 2024; Ramirez, 2024). Clearly, school librarians face more challenges than how to engage in collaboration with teachers in providing crucial instruction that has the potential to lead to increased student IL competency skills.

Information literacy skills competency is a critical and evolving need in the 21st century. Students in the Mountain West and across the United States need IL skills competency. Collaboration between teachers and school librarians is an effective way to teach IL skills and develop IL skills competency in students. School leaders and policy makers can implement policies and practices that drive the intentional inclusion of IL skills instruction in the curriculum and that foster and support collaboration between teachers and school librarians. Educational leaders, academic administrators, policymakers, teachers, and school librarians must be cognizant of the need for IL skills competency and the vital role of school librarians in meeting this critical 21st century literacy.

References

Adam, K., Michael, J., Netz, L., Rumpe, B., & Varga, S. (2020). *Enterprise information systems in academia and practice: Lessons learned from a MBSE project*. Gesellschaft für Informatik eV.

Akpan, D. V. I., Igwe, D. U. A., Blessing, I., Mpamah, I., & Okoro, C. O. (2020). *Social constructivism: Implications on teaching and learning*. *8*, 8.

Alexander, S., & Wood, L. M. (2019). No news is good news? Satirical news videos in the information literacy classroom. *Portal: Libraries and the Academy*, *19*(2), 253–278. https://doi.org/10.1353/pla.2019.0015

Alfonseca, K. (2024, April 13). *Librarians say they face threats, lawsuits, jail fears over ongoing book battles*. ABC News. https://abcnews.go.com/US/librarians-face-threats-lawsuits-jail-fears-ongoing-book/story?id=109081570

Allen, M. (2008). Promoting critical thinking skills in online information literacy instruction using a constructivist approach. *College & Undergraduate Libraries, 51,* 21-38.

Al-Qallaf, C. L., & Aljiran, M. A. (2021). The teaching and learning of information literacy skills among high school students: Are we there yet? *International Information & Library Review*, 1-17. Advance online publication. https://doi.org/10.1080/10572317.2021.1973354

American Association of School Librarians. (2018). *National school library standards for learners, school librarians, and school libraries*. ALA Editions, an imprint of the American Library Association.

American Library Association. (1989). *Presidential Committee on Information Literacy: Final Report.* Association of College & Research Libraries (ACRL). https://www.ala.org/acrl/publications/whitepapers/presidential

American Library Association. (2022). *Definition of a library: General definition.* https://libguides.ala.org/library-definition/general

Anderson, M., Faverio, M., & McClain, C. (2022). *How teens navigate school during COVID-19.* PEW Research Center. https://www.pewresearch.org/internet/2022/06/02/how-teens-navigate-school-during-covid-19/

Anderson, M., & Jiang, J. (2018). Teens, social media & technology 2018. *Pew Research Center, 31*(2018), 1673-1689. http://publicservicesalliance.org/wp-content/uploads/2018/06/Teens-Social-Media-Technology-2018-PEW.pdf

Anggreini, E. W., & Mutia, F. (2022). Trust, collegiality, and communication between teachers and librarians to support student learning. *Annals of Library and Information Studies (ALIS)*, *69*(1), Article 1. https://doi.org/10.56042/alis.v69i1.53982

Asselin, M. M., & Lee, E. A. (2002). "I wish someone had taught me": Information literacy in a teacher education program. *Teacher Librarian*, *30*(2), 10.

Association of College & Research Libraries. (2015). *Framework for IL for Higher Education.* https://www.ala.org/acrl/standards/ilframework

Asún, R. A., Rdz-Navarro, K., & Alvarado, J. M. (2016). Developing Multidimensional Likert Scales Using Item Factor Analysis: The Case of Four-point Items. *Sociological Methods & Research*, *45*(1), 109–133. https://doi.org/10.1177/0049124114566716

Atkinson, D., & Thornton, S. (2021). The citation behaviours and the academic performance of first-year Political Science students. *European Political Science*. Advance online publication. https://doi.org/10.1057/s41304-021-00333-x

Aubrey, K., & Riley, A. (2019). *Understanding and using educational theories*. SAGE.

Baird, C., & Soares, T. (2020). Faculty perceptions of students' IL learning in first-year writing. *Portal: Libraries and the Academy*, *20*(3), 509–532. https://doi.org/10.1353/pla.2020.0028

Barry, M. E., Snyder, R. J., & Mathuews, K. B. (2021). Motivations and challenges of academic library support during the transition to college. *Portal: Libraries and the Academy*, *21*(3), 511–530. https://doi.org/10.1353/pla.2021.0028

Bawden, D. (2008). Smoother pebbles and the shoulders of giants: The developing foundations of information science. *Journal of Information Science*, *34*(4), 415–426.

Behrens, S. J. (1994). A conceptual analysis and historical overview of information literacy. *College & Research Libraries*, *55*(4), 309–322. https://doi.org/10.5860/crl_55_04_309

Ben Amram, S., Aharony, N., & Bar Ilan, J. (2021). Information literacy education in primary schools: A case study. *Journal of Librarianship and Information Science*, *53*(2), 349–364. https://doi.org/10.1177/0961000620938132

Bennedbaek, D., Clark, S., & George, D. (2021). The impact of librarian-student contact on students' information literacy competence in small colleges and universities. *College & Undergraduate Libraries*, *28*(1), 1–17.

Berkowitz, R. E., & Eisenberg, M. B. (1989). *The curriculum roles and responsibilities of library media specialists.* ERIC. https://eric.ed.gov/?id=ED308880

Bhat, C. S., & Stevens, M. M. (2021). College and career readiness group interventions for early high school students. *The Journal for Specialists in Group Work*, *46*(1), 20–31. https://doi.org/10.1080/01933922.2020.1856250

Blakeslee, S. (2004). The CRAAP test. *Loex Quarterly*, *31*(3), 4. https://commons.emich.edu/cgi/viewcontent.cgi?article=1009&context=loexquarterly

Blecher-Cohen, Z. (2019). The student connection: Thinking critically on library anxiety and information literacy. *Public Services Quarterly*, *15*(4), 359–367. https://doi.org/10.1080/15228959.2019.1664361

Bowker, G. C., Baker, K., Millerand, F., & Ribes, D. (2010). Toward information infrastructure studies: ways of knowing in a networked environment. In J. Hunsinger, L. Klastrup & M. Allen (Eds.), *International handbook of Internet research* (pp. 97117). Dordrecht, the Netherlands: Springer.

Bradley, C. S., Dreifuerst, K. T., Johnson, B. K., & Loomis, A. (2022). More than a meme: The Dunning-Kruger Effect as an opportunity for positive change in nursing education. *Clinical Simulation in Nursing*, *66*, 58–65. https://doi.org/10.1016/j.ecns.2022.02.010

Brisola, A. C., & Doyle, A. (2019). Critical information literacy as a path to resist "fake news": Understanding disinformation as the root problem. *Open Information Science*, *3*(1), 274–286.

Britannica. (n.d.). *School libraries.* Retrieved December 2, 2022, from https://www.britannica.com/topic/library/School-libraries#ref320711

Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review, 31*(1), 21-32.

Buber, M. (1937). *I and thou*. Clark.

Buchanan, S. (2012). Designing the research commons: Classical models for school libraries. *School Libraries Worldwide*, *18*(1), 56–69.

Buchanan, S., Harlan, M. A., Bruce, C., & Edwards, S. (2016). Inquiry based learning models, information literacy, and student engagement: A literature review. *School Libraries Worldwide*, *22*(2), 23–39. https://doi.org/10.29173/slw6914

Burks, F. (1996). Student use of school library media centers in selected high schools in Greater Dallas-Fort Worth, Texas. *School Library Media Quarterly*, *24*(3), 143–149.

Burns, E., Gross, M., & Latham, D. (2019). The information literacy continuum: Mapping the ACRL Framework to the AASL School Library Standards. *School Libraries Worldwide*, *25*(1), 1–20. http://dx.doi.org/10.14265.25.1.001

Bury, S. (2011). Faculty attitudes, perceptions and experiences of information literacy: A study across multiple disciplines at York University, Canada. *Journal of Information Literacy, 5*(1), 4564. http://doi.org/10.11645/5.1.1513

Buschman, J., & Leckie, G. J. (2007). The library as place: History, community, and culture (1st ed.). Libraries Unlimited.

Centerwall, U., & Nolin, J. (2019). Using an infrastructure perspective to conceptualise the visibility of school libraries in Sweden. *Information Research: An International Electronic Journal*, *24*(3). https://eric.ed.gov/?id=EJ1229380

Černý, M. (2021). Discursive formed topics in IL: Literature review and high school students' perspectives. *Problems of Education in the 21st Century*, *79*(4), 516–543. https://doi.org/10.33225/pec/21.79.516

Church, A. P. (2008). The instructional role of the library media specialist as perceived by elementary school principals. *School Library Media Research*, *11*, 28.

Collins, B. L. (2009). Integrating information literacy skills into academic summer programs for

    precollege students. *Reference Services Review*, *37*(2), 143–154.

    http://dx.doi.org/10.1108/00907320910957189

Collins English Dictionary. (n.d.). Retrieved October 16, 2022, from

    https://www.collinsdictionary.com/us/dictionary/english/librarian

Common Core State Standards Initiative. (2009). *Development process.* Retrieved March 28,

    2022, from http://www.corestandards.org/about-the-standards/development-process/

Cooke, L., Norris, M., & Busby, N. (2011). Evaluating the impact of academic liaison librarians

    on their user community: A review and case study. *New Review of Academic*

    Librarianship 17(1), 5–30.

Cooperstein, S. E., & Kocevar-Weidinger, E. (2004). Beyond active learning: A constructivist

    approach to learning. *Reference Services Review*, *32*(2), 141–148.

    https://doi.org/10.1108/00907320410537658

Copeland, A., & Jacobs, L. (2017). The power of collaboration between school librarian and

    classroom teacher. *Teacher Librarian*, *45*(2), 22–27.

Correll, M. (2019). What do high school students know about information literacy? A case study

    of one university's feeder schools. *Pennsylvania Libraries: Research & Practice*, *7*(1),

    25–37. https://doi.org/10.5195/palrap.2019.202

Coutinho, M. V., Thomas, J., Lowman, I. F., & Bondaruk, M. V. (2020). The Dunning-Kruger

    effect in Emirati college students: Evidence for generalizability across cultures.

    International Journal of Psychology and Psychological Therapy, *20*(1), 29–36.

Cox, J. (2018). Positioning the academic library within the institution: A literature review. *New Review of Academic Librarianship*, *24*(3–4), 217–241. https://doi.org/10.1080/13614533.2018.1466342

Crary, S. (2019). Secondary teacher perceptions and openness to change regarding instruction in information literacy skills. *School Library Research*, *22*, 1–26.

Crawford, J., & Irving, C. (2009). Information literacy in the workplace: A qualitative exploratory study. *Journal of Librarianship and Information Science*, *41*(1), 29–38. https://doi.org/10.1177/0961000608099897

Creswell, J. W., & Guetterman, T. C. (2019). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (6th ed.). Pearson.

Croxton, R. A., & Moore, A. C. (2020). Quantifying library engagement: Aligning library, institutional, and student success data. *College & Research Libraries*, *81*(3), 399.

Cunningham, V., & Williams, D. (2018). The seven voices of information literacy (IL). *Journal of Information Literacy*, *12*(2), 4–23. https://doi.org/10.11645/12.2.2332

DaLomba, E. J., Kavanaugh, E., Manbeck, K., O'Neill, S., Soldevilla, K., Watson, M., & McLaughlin, E. (2020). The use of an embedded librarian to enhance student information literacy skills: A pilot study. *Journal of Occupational Therapy Education*, *4*(2). https://doi.org/10.26681/jote.2020.040204

Das, R., & Ahmed, W. (2022). Rethinking fake news: Disinformation and ideology during the time of COVID-19 global pandemic. *IIM Kozhikode Society & Management Review*, *11*(1), 146–159. https://doi.org/10.1177/22779752211027382

Davis, G. M., & Watson, E. (2017). Creating an online information literacy course for concurrent enrollment students: A collaboration with a state-sponsored online school. *College & Undergraduate Libraries*, *24*(1), 29–50. https://doi.org/10.1080/10691316.2016.1190676

Dawes, L. (2019). Faculty perceptions of teaching information literacy to first-year students: A phenomenographic study. *Journal of Librarianship and Information Science*, *51*(2), 545–560. https://doi.org/10.1177/0961000617726129

DeCarlo, M., Cummings, C., & Agnelli, K. (2021). 4. Critical information literacy. *Graduate Research Methods in Social Work*.

Deja, M., Rak, D., & Bell, B. (2021). Digital transformation readiness: Perspectives on academia and library outcomes in information literacy. *The Journal of Academic Librarianship*, *47*(5), 102403. https://doi.org/10.1016/j.acalib.2021.102403

Deshler, D. D., Mitchell, B. B., Kennedy, M. J., Novosel, L., & Ihle, F. (2012). Content-Area Learning. In N. M. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp. 787–790). Springer US. https://doi.org/10.1007/978-1-4419-1428-6_552

Dewey, J. (1929). *The quest for certainty.* Minton.

Dokubo, A. (2022). *Understanding collaboration and trust between coteachers* [Thesis, Johns Hopkins University]. https://jscholarship.library.jhu.edu/handle/1774.2/66992

Donham, J. (2014). College ready--what can we learn from first-year college assignments? An examination of assignments in iowa colleges and universities. *School Library Research*, *17*. https://eric.ed.gov/?q=%22information+literacy%22+AND+%22library+role%22+AND+%22college+readiness%22&pr=on&id=EJ1022552

Douglas, V. A., & Rabinowitz, C. E. (2017). *Examining the relationship between faculty-librarian collaboration and first-year students' information literacy abilities*. https://doi.org/10.5860/crl.77.2.144

Doyle, C. S. (1992). *Outcome measures for information literacy within the national education goals of 1990: Final report to the National Forum on Information Literacy. Summary of findings*. ERIC Clearinghouse on Information and Technology.

Doyle, C. S. (1994). *Information literacy in an information society: A concept for the information age*. ERIC Clearinghouse on Information and Technology.

Dubicki, E. (2013). Faculty perceptions of students' information literacy skills competencies. *Journal of Information Literacy*, *7*(2), 97–125. https://doi.org/10.11645/7.2.1852

Eberhart, G. M. (2010). *The librarian's book of lists*. American Library Association.

Egalite, A. J., & Kisida, B. (2016). School size and student achievement: A longitudinal analysis. *School Effectiveness and School Improvement*, *27*(3), 406–417. https://doi.org/10.1080/09243453.2016.1190385

Elbasri, T. (2018). Learning technology leadership: A literature review and proposed agenda for investigating future school librarians' experiences. *Education Libraries*, *41*. https://doi.org/10.26443/el.v41i0.349

Elmwood, V. (2018). *What the CRAAP?: Comparing approaches to teaching web evaluation in FYE programs*.

Eri, T., & Pihl, J. (2017). The challenge of sustaining change: Contradictions within the development of teacher and librarian collaboration. *Educational Action Research*, *25*(2), 239–255. https://doi.org/10.1080/09650792.2016.1147366

Eubanks, J. P. (2014). Potential ramifications of Common Core State Standards adoption on

information literacy. *Communications in Information Literacy*, *8*(1), 23-31.

https://doi.org/10.15760/comminfolit.2014.8.1.162

Farmer, L. S. J., & Phamle, S. (2021). Transitioning to college: Impact of high school librarians.

The Journal of Academic Librarianship, *47*(1), 102262.

https://doi.org/10.1016/j.acalib.2020.102262

Ferretti, M. P. (2022). Fake news and the responsibilities of citizens. *Social Theory and Practice*.

https://doi.org/10.5840/soctheorpract2022726166

Field, A. (2018). *Discovering statistics using IBM SPSS statistics.* Sage: Los Angeles.

Fisher, H. H., Hawkins, G. T., Hertz, M., Sliwa, S., & Beresovsky, V. (2022). Student and school

characteristics associated with COVID-19-related learning decline among middle and

high school students in K-12 schools. *Journal of School Health*, *92*(11), 1027–1039.

https://doi.org/10.1111/josh.13243

Fontichiaro, K., & Johnston, M. P. (2020). Rapid shifts in educators' perceptions of data literacy

priorities. *Journal of Media Literacy Education*, *12*(3), 75–87.

https://eric.ed.gov/?id=EJ1293290

Foote, C. (2016). Building success beyond high school with career-and college-ready literacies.

Knowledge Quest, *44*(5), 56–60.

Fuchs, C., & Ball, H. (2021). Making connections for student success: Mapping concept

commonalities in the ACRL Framework for Information Literacy, the Common Core

State Standards, and the American Association of School Librarians Standards for the

21st-Century Learner. *College & Undergraduate Libraries*, *28*(2), 180–193.

https://doi.org/10.1080/10691316.2021.1905577

Gabbay, L. K., & Shoham, S. (2019). The role of academic libraries in research and teaching. *Journal of Librarianship and Information Science*, *51*(3), 721–736. https://doi.org/10.1177/0961000617742462

Gaha, U., Hinnefeld, S., & Pellegrino, C. (2018). The academic library's contribution to student success: Library instruction and GPA. *College & Research Libraries*, *79*(6), 737–746. https://doi.org/10.5860/crl.79.6.737

Garcia, C., Argelagós, E., & Privado, J. (2021). Assessment of higher education students' information problem-solving skills in educational sciences. *Information Development*, *37*(3), 359–375. https://doi.org/10.1177/0266666920976189

Gardijan, N. (2021). Library anxiety: An overview of re-emerging phenomena. *Library Philosophy and Practice*, *(2021)*.

Gaultney, I., Sherron, T., & Boden, C. (2022). Political polarization, misinformation, and media literacy. *Journal of Media Literacy Education*, *14*(1), 59–81. https://doi.org/10.23860/JMLE-2022-14-1-5

Gewertz, C. (2015, September 30). The Common Core explained. *Education Week*. https://www.edweek.org/teaching-learning/the-common-core-explained/2015/09

González-Pérez, L. I., & Ramírez-Montoya, M. S. (2022). Components of Education 4.0 in 21st century skills frameworks: Systematic review. *Sustainability*, *14*(3), 1493.

Graves, S. J., LeMire, S., & Anders, K. C. (2021). Uncovering the information literacy skills of first-generation and provisionally admitted students. *The Journal of Academic Librarianship*, *47*(1), 102260. https://doi.org/10.1016/j.acalib.2020.102260

Green, S., Sanczyk, A., Chambers, C., Mraz, M., & Polly, D. (2021). College and career readiness: A literature synthesis. *Journal of Education*, 00220574211002209. https://doi.org/10.1177/00220574211002209

Greenwood, S. (2021, June 3). Mobile technology and home broadband 2021. *Pew Research Center: Internet, Science & Tech*. https://www.pewresearch.org/internet/2021/06/03/mobile-technology-and-home-broadband-2021/

Gregory, J. (2018). The information literate student: Embedding information literacy across disciplines with guided inquiry. *Teacher Librarian*, *45*(5), 27–34.

Gross, M., & Latham, D. (2011). Experiences with and perceptions of information: A phenomenographic study of first-year college students. *The Library Quarterly*, *81*(2), 161–186. https://doi.org/10.1086/658867

Gross, M., & Witte, S. (2016). An exploration of teacher and librarian collaboration in the context of professional preparation. *New Review of Children's Literature and Librarianship*, *22*(2), 159–185.

Gustavson, A., & Nall, H. C. (2011). Freshman overconfidence and library research skills: A troubling relationship? *College & Undergraduate Libraries*, *18*(4), 291–306. https://doi.org/10.1080/10691316.2011.624953

Hack-Polay, D., Igwe, P. A., & Okolie, U. C. (2020). Room for improvement: A study of overconfidence in numerical skills among British graduates. *Industry and Higher Education*, *34*(1), 50–61.

Hadlington, L., Harkin, L. J., Kuss, D., Newman, K., & Ryding, F. C. (2022). Perceptions of fake news, misinformation, and disinformation amid the COVID-19 pandemic: A qualitative exploration. *Psychology of Popular Media*. https://doi.org/10.1037/ppm0000387

Hameleers, M. (2022). Separating truth from lies: Comparing the effects of news media literacy interventions and fact-checkers in response to political misinformation in the US and Netherlands. *Information, Communication & Society*, *25*(1), 110–126. https://doi.org/10.1080/1369118X.2020.1764603

Hannon, A. (2023, June 13). *School districts grapple with library book challenges*. Buffalo Bulletin. https://www.buffalobulletin.com/news/article_0c746242-09ff-11ee-9537-1b9b8f541e71.html

Hanson, L. (2024, March 29). *Book banning bill gives schools power to ban throughout Utah*. Daily Utah Chronicle. https://dailyutahchronicle.com/2024/03/29/book-banning-bill-school-districts-power/

Hargreaves, A. (2019). Teacher collaboration: 30 years of research on its nature, forms, limitations and effects. *Teachers and Teaching*, *25*(5), 603–621. https://doi.org/10.1080/13540602.2019.1639499

Harkness, S. J., Rusk, F. A., & Rubio, R. (2021). Using an embedded librarian model to increase information literacy in political science research methods. *Journal of Political Science Education*, *17*(3), 385–405. https://doi.org/10.1080/15512169.2019.1667810

Harvey, N. (1997). Confidence in judgment. *Trends in Cognitive Sciences*, *1*(2), 78–82. https://doi.org/10.1016/S1364-6613(97)01014-0

Hattani, H. A. (2019). Media literacy education in secondary school: Teachers' attitudes. *Journal of Media Research*, *12*(1), 5–26. http://dx.doi.org/10.24193/jmr.33.1

Haycock, K. (2007). Collaboration: Critical success factors for student learning. *School Libraries Worldwide*, *13*(1), 25–35.

Head, A. J., & Eisenberg, M. (2011). How college students use the Web to conduct everyday life research. *First Mondays, 16*(4).

Head, A. J., Hoeck, M. V., Eschler, J., & Fullerton, S. (2013). What information competencies matter in today's workplace? *Library and Information Research*, *37*(114), 74–104. https://doi.org/10.29173/lirg557

Heriyanto, Prasetyawan, Y. Y., & Krismayani, I. (2021). Distance learning information literacy: Undergraduate students experience distance learning during the COVID-19 setting. *Information Development*, *37*(3), 458–466. https://doi.org/10.1177/02666669211018248

Hertzell, G. (1997). The invisible school librarian. *School Library Journal*, *43*(11), 24.

Hill, P. T. (2015). States could do more for rural education. *Uncovering the productivity promise of rural education, 4,* 4-13.

Hollis, H. (2018). Information literacy as a measurable construct. *Journal of Information Literacy*, *12*(2), 76–88. https://doi.org/10.11645/12.2.2409

Hossain, Z. (2022). University freshmen recollect their academic integrity literacy experience during their K-12 years: Results of an empirical study. *International Journal for Educational Integrity*, *18*(4), 1–18. https://doi.org/10.1007/s40979-021-00096-4

Hoy, W. K., & Adams, C. M. (2016). *Quantitative research in education: A primer*. SAGE.

Hughes, R. E. (2001). Deciding to leave but staying: Teacher burnout, precursors and turnover. *The International Journal of Human Resource Management*, *12*(2), 288–298. https://doi.org/10.1080/713769610

Huillca-Huillca, A. G., Cardona-Reyes, H., Vera-Vasquez, C. G., Mamani-Calcina, J. G., Ponce-Aranibar, M. D. P., & Espinoza-Suarez, S. (2022). Digital competencies in in-service teachers, a post-pandemic analysis. *2022 XII International Conference on Virtual Campus (JICV)*, 1–4. https://doi.org/10.1109/JICV56113.2022.9934609

Ilett, D. (2019). First-generation students' information literacy in everyday contexts. *Journal of Information Literacy*, *13*(2), 73–91.

Ishizuka, K. (2023, September 30). Nearly a quarter of school librarians have experienced harassment over books. *School Library Journal*. https://www.slj.com/story/Nearly-a-Quarter-of-School-Librarians-Have-Experienced-Harassment-Over-Books-SLJ-Censorship-Survey

Jones-Jang, S. M., Mortensen, T., & Liu, J. (2021). Does media literacy help identification of fake news? Information literacy helps, but other literacies don't. *American Behavioral Scientist*, *65*(2), 371–388. https://doi.org/10.1177/2F0002764219869406

Kachel, D. E., & Lance, K. C. (2018, April). Changing times: School librarian staffing status. *Teacher Librarian*, *45*(4), 14-19,63.

Kachel, D. E., & Lance, K. C. (2021a). *Requirements for school librarian employment: A state-by-state summary*. https://libslide.org/pubs/requirements.pdf

Kachel, D. E., & Lance, K. C. (2021b). The status of state support of school library programs. *Teacher Librarian*, *48*(5), 8–13.

Kachel, D. E., & Lance, K. C. (2024). *State profile*. https://libslide.org/data-tools/state-profile/

Kammer, J., King, M., Donahay, A., & Koeberl, H. (2021). Strategies for successful school librarian and teacher collaboration. *School Library Research*, *24*. https://eric.ed.gov/?q=information+literacy+teacher+librarian+collaboration&id=EJ1292862

Kelly, J. V. (2013). Paul G. Zurkowski and information literacy: On his trip to the first European Conference on Information Literacy. *Journal of Information Literacy*, *7*(2), 163–167. https://doi.org/10.11645/7.2.1867

Kent State University Libraries. (2019). *TRAILS assessments now available as open educational resources*. Retrieved March 24, 2024, from https://www.library.kent.edu/news/2019-09-11/trails-assessments-now-available-open-educational-resources

Knecht, M. K. (2022). *Investigating nontraditional first-year students' epistemic curiosity during the research process: An exploratory, mixed-methods study*. https://doi.org/10.5860/crl.83.6.874

Knott, E., Rao, A. H., Summers, K., Teeger, C., Rao, A. H., Summers, K., & Teeger, C. (2022). Interviews in the social sciences. *Nature Reviews Methods Primers*, *2*(1), Article 1. https://doi.org/10.1038/s43586-022-00150-6

Kocevar-Weidinger, E., Cox, E., Lenker, M., Pashkova-Balkenhol, T., & Kinman, V. (2019). On their own terms: First-year student interviews about everyday life research can help librarians flip the deficit script. *Reference Services Review*, *47*(2), 169–192. https://doi.org/10.1108/RSR-02-2019-0007

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

Kovalik, C., Yutzey, S., & Piazza, L. (2013). Information literacy and high school seniors: Perceptions of the research process. *School Library Research*, *16*. https://eric.ed.gov/?q=%22school+librarians%22+AND+%22high+school+students%22&pr=on&id=EJ1012829

Krolak, L. (2006). The role of libraries in the creation of literate environments. *International Journal of Adult and Lifelong Education*, *4*(1/4), 1-20. https://cf3-www.ifla.org/files/assets/literacy-and-reading/publications/role-of-libraries-in-creation-of-literate-environments.pdf

Kuhlthau, C. C. (1985). *Teaching the information search process: A step-by-step program for secondary students*. Center for Applied Research in Education.

Kuhlthau, C. C. (1988). Perceptions of the information search process in libraries: A study of changes from high school through college. *Information Processing and Management, 24*, 419-427.

Kuhlthau, C. C. (1990). Validating a model of the Search Process: A comparison of academic, public and school library users. *Library and Information Science Research, 12*, 5-31.

Kuhlthau, C. C. (1991). Inside the search process: Information seeking from the user's perspective. *Journal of the American Society for Information Science*, *42*(5), 361–371. https://doi.org/10.1002/(SICI)1097-4571(199106)42:5<361::AID-ASI6>3.0.CO;2-#

Kuhlthau, C. C. (1993). Implementing a process approach to information skills: A study identifying indicators of success in library media programs. *School Library Media Quarterly, 22*, 11-18.

Kuhlthau, C. C. (1996). *Seeking Meaning: A Process Approach to Library and Information Services*. Ablex Publishing Corporation.

Kuhlthau, C. C., Heinström, J., & Todd, R. J. (2008). The 'information search process' revisited: Is the model still useful. *Information research*, *13*(4), 13-4.

Kuhlthau, C. C., Maniotes, L. K., & Caspari, A. K. (2015). *Guided inquiry: Learning in the 21ˢᵗ century.* Libraries Unlimited.

Laerd Statistics. (2024). Retrieved from https://statistics.laerd.com/premium/index.php

Laguilles, J. S., Williams, E. A., & Saunders, D. B. (2011). Can lottery incentives boost web survey response rates? Findings from four experiments. *Research in Higher Education*, *52*(5), 537–553. https://doi.org/10.1007/s11162-010-9203-2

Lance, K. C., & Hofschire, L. (2012). Change in school librarian staffing linked with change in CSAP reading performance, 2005 to 2011. A closer look. In *Library Research Service*. Library Research Service. https://eric.ed.gov/?id=ED572250

Lance, K. C., & Maniotes, L. K. (2020). Linking librarians, inquiry learning, and information literacy? *Phi Delta Kappan*, *101*(7), 47–51. https://doi.org/10.1177/0031721720917542

Lance, K. C., Rodney, M. J., & Schwarz, B. (2010, June). Collaboration works-when it happens!: The Idaho school library impact study. *Teacher Librarian*, *37*(5), 30–36.

Lanning, S., & Mallek, J. (2017). Factors influencing information literacy competency of college students. *The Journal of Academic Librarianship*, *43*(5), 443–450. https://doi.org/10.1016/j.acalib.2017.07.005

Larkin, B. (2013). The politics and poetics of infrastructure. *Annual Review of Anthropology*, *42*(1), 327–343. https://doi.org/10.1146/annurev-anthro-092412-155522

Latham, D., Gross, M., & Witte, S. (2013). Preparing teachers and librarians to collaborate to teach 21st century skills: Views of LIS and education faculty. *School Library Research*, *16*. https://eric.ed.gov/?id=EJ1012833

Lee, E. A., & Klinger, D. A. (2021). Elementary school students' perceptions of libraries and librarians. *IASL Annual Conference Proceedings*. https://doi.org/10.29173/iasl7667

Lee, T., Johnson, T. J., & Sturm Wilkerson, H. (2022). You can't handle the lies!: Exploring the role of Gamson Hypothesis in explaining third-person perceptions of being fooled by fake news and fake news sharing. *Mass Communication and Society*, *0*(0), 1–24. https://doi.org/10.1080/15205436.2022.2026401

Lee, T. D., Lee, B.-K., & Lee-Geiller, S. (2020). The effects of information literacy on trust in government websites: Evidence from an online experiment. *International Journal of Information Management*, *52*, 102098. https://doi.org/10.1016/j.ijinfomgt.2020.102098

Leonard, L. J. (2002). Schools as professional communities: Addressing the collaborative change. International Electronic Journal of Leadership in Learning, 6(17).

Leonard, L. J. (2003). Continuing trouble with collaboration: Teacher talk. Current Issues in Education, 6(1).

Lewis, A. (2001). The issue of perception: Some educational implications. *Educare*, *30*(1), 272–288. https://doi.org/10.10520/EJC31721

Lewis, M. A. (2021). Enabling school librarians to serve as instructional leaders of multiple literacies. *School Library Research*, *24*, 1–30.

Li, R., & Yao, M. (2022). What promotes teachers' turnover intention? Evidence from a meta-analysis. *Educational Research Review*, *37*, 100477. https://doi.org/10.1016/j.edurev.2022.100477

Limberg, L., & Alexandersson, M. (2003). The school library as a space for learning. *School Libraries Worldwide*, *9*(1), 1–15.

Lindstrom, J., & Shonrock, D. D. (2006). Faculty-Librarian Collaboration to Achieve Integration of Information Literacy. *Reference & User Services Quarterly*, *46*(1), 18–23.

Liu, G. (2021). Moving up the ladder of source assessment: Expanding the CRAAP test with critical thinking and metacognition. *College & Research Libraries News*, *82*(2), 75.

Logframer. (2016). *Likert type scale*. https://www.logframer.eu/content/likert-type-scale

Loh, C. E., Sundaray, S., Merga, M., & Gao, J. (2021). Principals' and teachers' perspectives of their school libraries and implications for school library policy. *Journal of Library Administration*, *61*(5), 550–571. https://doi.org/10.1080/01930826.2021.1924532

Lowe, M. S., Currier, A., & Graunke, S. (2020). Documenting the value of librarians in the classroom: Results from a mixed-methods research collaboration with campus partners. *College & Research Libraries*, *81*(3). https://doi.org/10.5860/crl.81.3.492

Lupton, M. (2016). Adding value: Principals' perceptions of the role of the teacher-librarian. *School Libraries Worldwide*, *22*(1), 49–59. https://doi.org/10.29173/slw6905

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing research*, *35*(6), 382-386.

Mahaffey, A., Wolfe, Z., & Ciampa, K. (2020). Elementary principals' knowledge of and expectations for specialized literacy professionals. *Journal of Organizational and Educational Leadership*, *5*(2), 1–26.

Maharaj, D. S. (2016). *Collaboration between a teacher librarian and a teacher of technology to infuse 21st century skills within a K-4 school setting: A case study* [Ed.D., Northeastern University].

https://www.proquest.com/docview/1780296204/abstract/33616C2AA45A4700PQ/2

Marcetic, B. (2023, July 16). Montana conservatives are stoking McCarthyist, homophobic

   attacks on a librarian. *Jacobin*. https://jacobin.com/2023/07/american-library-association-

   emily-drabinski-montana-state-library-right-wing-homophobia-anticommunism

Marcum, J. (2002). Rethinking information literacy. *Library Quarterly, 72*, 1-26.

Marineo, F., & Shi, Q. (2019). Supporting student success in the first-year experience: Library

   instruction in the learning management system. *Journal of Library & Information

   Services in Distance Learning*, *13*(1–2), 40–55.

   https://doi.org/10.1080/1533290X.2018.1499235

Mattern, K., Burrus, J., Camara, W., O'Connor, R., Hansen, M. A., Gambrell, J., Casillas, A., &

   Bobek, B. (2014). Broadening the Definition of College and Career Readiness: A Holistic

   Approach. ACT Research Report Series, 2014 (5). *ACT, Inc.*

   https://www.act.org/content/dam/act/unsecured/documents/ACT_RR2014-5.pdf

Mattessich, P. W., & Monsey, B. R. (1992). *Collaboration: What makes it work. A review of

   research literature on factors influencing successful collaboration*. Amherst H.

   https://eric.ed.gov/?id=ED390758

Maxwell, J. A. (2012). *Qualitative research design.* Sage.

Maybee, C., Carlson, J., Slebodnik, M., & Chapman, B. (2015). "It's in the syllabus": Identifying

   information literacy and data information literacy opportunities using a grounded theory

   approach. *The Journal of Academic Librarianship*, *41*(4), 369–376.

   https://doi.org/10.1016/j.acalib.2015.05.009

McAfee, E. L. (2018). *Shame: The emotional basis of library anxiety*.

   https://doi.org/10.5860/crl.79.2.237

McBurney, J., & Kubas, A. (2019). Recoding the academic librarian: Our developing role as data detectives. *Recasting the Narrative*, 493–506.

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

McGuinness, C. (2006). What faculty think – Exploring the barriers to information literacy development in undergraduate education. *The Journal of Academic Librarianship, 32*(6), 573582. https://doi.org/10.1016/j.acalib.2006.06.002

McKeever, C. M. (2013). Information literacy skills in Year 14 school leaving pupils-are they ready for third level study? *Journal of Information Literacy*, *7*(1), 99–106.

McKeever, C. M., Bates, J., & Reilly, J. (2017). School library staff perspectives on teacher information literacy and collaboration. *Journal of Information Literacy*, *11*(2), 51–68. https://doi.org/10.11645/11.2.2187

McNelly, T. A., & Harvey, J. (2021). Media literacy instruction in today's classrooms: A study of teachers' knowledge, confidence, and integration. *Journal of Media Literacy Education*, *13*(1), 108–130.

McPherson, H., & Dubé, M. (2016). Reducing the information literacy gap in high school students: An action research study. *Knowledge Quest*, *45*(2), 48–55.

Media Literacy Now. (2023). *Media literacy policy report 2022*. https://medialiteracynow.org/policyreport/

Merga, M. K. (2020). School librarians as literacy educators within a complex role. *Journal of Library Administration*, *60*(8), 889–908. https://doi.org/10.1080/01930826.2020.1820278

Merga, M. K., Roni, S. M., Loh, C. E., & Malpique, A. (2021). Revisiting collaboration within and beyond the school library: New ways of measuring effectiveness. *Journal of Library Administration*, *61*(3), 332–346. https://doi.org/10.1080/01930826.2021.1883370

Mertes, N. (2014). Information literacy teaching and collaboration with the school library: What teachers think and do. *IASL Annual Conference Proceedings*. https://doi.org/10.29173/iasl7864

Miller, K. (2004). Novice teachers' perceptions of the role of the teacher-librarian in information literacy. *School Libraries in Canada*, *24*(3), 8–26.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, *108*(6), 1017–1054.

Mohamad, G. (2017). *A librarian-teacher collaboration: Integrating information literacy and technology in the K-12 classroom*. [Ed.D., New Jersey City University]. ProQuest Dissertations and Theses Global.

Molina, M. D., Sundar, S. S., Le, T., & Lee, D. (2021). "Fake news" is not simply false information: A concept explication and taxonomy of online content. *American Behavioral Scientist*, *65*(2), 180–212. https://doi.org/10.1177/0002764219878224

Montiel-Overall, P. (2005). Toward a theory of collaboration for teachers and librarians. *School Library Media Research*, *8*. https://eric.ed.gov/?id=ej965627

Montiel-Overall, P. (2007). A theoretical understanding of teacher and librarian collaboration (TLC). *School Libraries Worldwide*, *11*(2), Article 2. https://doi.org/10.29173/slw6962

Montiel-Overall, P. (2008). Teacher and librarian collaboration: A qualitative study. *Library & Information Science Research*, *30*(2), 145–155. https://doi.org/10.1016/j.lisr.2007.06.008

Montiel-Overall, P. (2009a). Cultural competence: A conceptual framework for library and

    information science professionals. *Library Quarterly*, *79*(2), 175–204.

    https://doi.org/10.1086/597080

Montiel-Overall, P. (2009b). Teachers' perceptions of teacher and librarian collaboration:

    Instrumentation development and validation. *Library & Information Science Research*,

    31(3), 182–191. https://doi.org/10.1016/j.lisr.2009.04.001

Montiel-Overall, P. (2010). Further understanding of collaboration: A case study how it works

    with teachers and librarians. *School Libraries Worldwide*, 31–54.

    https://doi.org/10.29173/slw6806

Montiel-Overall, P., & Hernandez, A. C. R. (2012). The effect of professional development on

    teacher and librarian collaboration: Preliminary findings using a revised instrument,

    TLC-III. *School Library Research*, *15*. https://eric.ed.gov/?q=montiel-

    overall&id=EJ994326

Montiel-Overall, P., & Jones, P. (2011). Teacher and school librarian collaboration: A

    preliminary report of teachers' perceptions about frequency and importance to student

    learning. *Canadian Journal of Information & Library Sciences*, *35*(1), 49–76.

    https://doi.org/10.1353/ils.2011.0001

Moreillon, J. (2008). Two heads are better than one: Influencing preservice classroom teachers'

    understanding and practice of classroom-library collaboration. *School Library Media*

    Research, *11*. https://eric.ed.gov/?id=EJ823033

Morrison, L. (2007). Faculty motivations: An exploratory study of motivational factors of faculty to assist with students' research skills development. *Partnership: The Canadian Journal of Library and Information Practice and Research, 2*(2). https://doi.org/10.21083/partnership.v2i2.295

Morrow, L. (2018). Academic integrity outreach: Supporting high school students for success in higher education. *Canadian Perspectives on Academic Integrity 1*(1): 6–8. https://doi.org/10.11575/cpai.v1i1.43375

Natanson, H. (2023, May 18). School librarians face a new penalty in the banned-book wars: Prison. *Washington Post*. https://www.washingtonpost.com/education/2023/05/18/school-librarians-jailed-banned-books/

Natanson, H., & Kaur, A. (2024, April 16). Red states threaten librarians with prison—As blue states work to protect them. *Washington Post*. https://www.washingtonpost.com/education/2024/04/16/library-legislation-restrictions-protections/

National Center for Education Statistics. (2023). https://nces.ed.gov/ccd/schoolsearch/

National Commission on Excellence in Education. (1983). *A Nation at Risk: The Imperative for Educational Reform. https://edreform.com/wp-content/uploads/2013/02/A_Nation_At_Risk_1983.pdf*

Neuman, S. (2002). The role of school libraries in elementary and secondary education [The White House Conference on School Libraries]. *Teacher Librarian*, *30*(1), n/a.

Neurohr, K. A. (2017). *First-generation undergraduate library users: Experiences and perceptions of the library as place* (Publication No. 10277110) [Doctoral dissertation, Oklahoma State University]. ProQuest Dissertations and Theses Global.

Newton, P. (2016). Academic integrity: A quantitative study of confidence and understanding in students at the start of their higher education. *Assessment & Evaluation in Higher Education*, *41*(3), 482–497. https://doi.org/10.1080/02602938.2015.1024199

Nierenberg, E., & Dahl, T. I. (2021). Is information literacy ability, and metacognition of that ability, related to interest, gender, or education level? A cross-sectional study of higher education students. *Journal of Librarianship and Information Science*, 1-13.

Nimon, M. (2001). The role of academic libraries in the development of the information literate student: The interface between librarian, academic and other stakeholders. *Australian Academic & Research Libraries*, *32*(1), 43–52. https://doi.org/10.1080/00048623.2001.10755142

Oakleaf, M. J. (2010). *The value of academic libraries: A comprehensive research review and report*. Association of College and Research Libraries, American Library Association.

Office of Educational Research and Improvement (ED). (1984). *Alliance for Excellence: Librarians Respond to "A Nation at Risk." Recommendations and Strategies from Libraries and the Learning Society*. Superintendent of Documents, U. https://eric.ed.gov/?id=ED243885

Oliveira, S. M. (2018). Trends in academic library space: From book boxes to learning commons. *Open Information Science*, *2*(1), 59–74. https://doi.org/10.1515/opis-2018-0005

O'Neal, A. J. (2004). Administrators', teachers', and media specialists' perceptions of the roles of media specialists in the schools' instructional programs: Implications for instructional administration. *Journal of Education for Library and Information Science*, *45*(4), 286–306. https://doi.org/10.2307/40323875

Ozyilmaz, A., Erdogan, B., & Karaeminogullari, A. (2018). Trust in organization as a moderator of the relationship between self-efficacy and workplace outcomes: A social cognitive theory-based examination. *Journal of Occupational and Organizational Psychology*, *91*(1), 181–204. https://doi.org/10.1111/joop.12189

Parker, S. K., Knight, C., & Keller, A. (2020). Remote managers are having trust issues. *Harvard Business Review*, *30*, 06–20.

Partnership for 21st Century Learning. (2019). *Framework for 21st Century Learning Definitions.* Battelle for Kids. https://static.battelleforkids.org/documents/p21/P21_Framework_DefinitionsBFK.pdf

Pashkova-Balkenhol, T., Lenker, M., Cox, E., & Kocevar-Weidinger, E. (2019). Should we flip the script? *Journal of Information Literacy*, *13*(2), 92–111. https://doi.org/10.11645/13.2.2619

Pasquini, L. A., & Schultz-Jones, B. (2019). Causality of school libraries and student success. *Qualitative and Quantitative Methods in Libraries*, *8*(3), 411–423.

Pew Research Center. (2021). Internet/broadband fact sheet. *Pew Research Center: Internet, Science & Tech*. Retrieved November 28, 2022, from https://www.pewresearch.org/internet/fact-sheet/internet-broadband/

Phillips, A. L., & Lee, V. R. (2019). Whose responsibility is it? A statewide survey of school librarians on responsibilities and resources for teaching digital citizenship. *School Library Research*, *22*, 1–20. http://files.eric.ed.gov/fulltext/EJ1218561.pdf

Piaget, J., & Inhelder, B. (1969). *The psychology of the child.* Basic Books.

Polit, D. F., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in nursing & health*, *29*(5), 489-497.

Rafste, E. T. (2003). *A place to learn or a place for pleasure? Pupils' uses of the school library in Norway*. ERIC. https://eric.ed.gov/?id=ED480350

Ramirez, L. (2024, April 23). Book ban fight in Nevada would create LGBTQ+ section of libraries. *Teen Vogue*. https://www.teenvogue.com/story/book-ban-nevada-lgbtq-libraries

Ratcliffe, M., Burd, C., Holder, K., & Fields, A. (2016). *Defining rural at the U.S. Census Bureau*. 8.

Ravitch, S., & Riggan, M. (2012). *Reason & rigor: How conceptual frameworks guide research.* SAGE.

Richards, M. (2021). Is "just googling it" good enough for first-year students? *College & Undergraduate Libraries*, *28*(1), 85–104. https://doi.org/10.1080/10691316.2021.1894295

Riehle, C. F., & Hensley, M. K. (2017). What do undergraduate students know about scholarly communication?: A mixed methods study. *Portal: Libraries and the Academy*, *17*(1), 145–178. https://doi.org/10.1353/pla.2017.0009

Rinio, D. (2018). Focus on collaboration: How understanding the nature of trust can help address the standards. *Knowledge Quest*, *46*(3), 44–48.

Rowe, J., Leuzinger, J., Hargis, C., & Harker, K. R. (2021). The impact of library instruction on undergraduate student success: A four-year study. *College & Research Libraries*, *82*(1), 7.

Rust, T. (2012). Technology and engineering education and the Common Core standards. *Technology and Engineering Teacher*, *72*(3), 32–36. https://eric.ed.gov/?id=EJ995786

Saldaña, J. (2021). *The coding manual for qualitative researchers*. SAGE.

Sánchez-Cruzado, C., Santiago Campión, R., & Sánchez-Compaña, M. T. (2021). Teacher digital literacy: The indisputable challenge after COVID-19. *Sustainability*, *13*(4), Article 4. https://doi.org/10.3390/su13041858

Saunders, L., Severyn, J., & Caron, J. (2017). Don't they teach that in high school? Examining the high school to college information literacy gap. *Library & Information Science Research*, *39*(4), 276–283. https://doi.org/10.1016/j.lisr.2017.11.006

Schatzki, T. (2002). *The site of the social: A philosophical account of the constitution of social life and change*. https://www.psupress.org/books/titles/0-271-02144-6.html

Schaub, G., Cadena, C., Bravender, P., & Kierkus, C. (2017). The language of information literacy: Do students understand? *College & Research Libraries*, *78*(3), 283–296. https://doi.org/10.5860/crl.78.3.283

Schiffl, I. (2020). How information literate are junior and senior class biology students? *Research in Science Education*, *50*(2), 773–789. https://doi.org/10.1007/s11165-018-9710-2

Scott, K. J., & Plourde, L. A. (2007). School libraries and increased student achievement: What's the big idea? *Education*, *127*(3), 419–429. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1057.8968&rep=rep1&type=pdf

Scoulas, J. M., & De Groote, S. L. (2019). The library's impact on university students' academic success and learning. *Evidence Based Library and Information Practice*, *14*(3), 2–27.

Scoulas, J. M., & De Groote, S. L. (2022). Impact of undergraduate students' library use on their learning beyond gpa: Mixed-methods approach. *College & Research Libraries*, *83*(3), 452.

Shannon, C., Reilly, J., & Bates, J. (2019). Teachers and information literacy: Understandings and perceptions of the concept. *Journal of Information Literacy*, *13*(2), 41–72.

Shaper, S., & Streatfield, D. (2012). Invisible care? The role of librarians in caring for the 'whole pupil' in secondary schools. *Pastoral Care in Education*, *30*(1), 65–75. https://doi.org/10.1080/02643944.2011.651225

Shi, J., Mo, X., & Sun, Z. (2012). Content validity index in scale development. *Journal of Central South University. Medical Sciences*, *37*(2), 152–155. https://doi.org/10.3969/j.issn.1672-7347.2012.02.007

Shonfeld, M., Aharony, N., & Nadel-Kritz, N. (2021). Teachers' perceived information literacy self-efficacy. *Journal of Librarianship and Information Science*, *Online first*, 09610006211026950. https://doi.org/10.1177/09610006211026950

Simmons, D. W., & Saunders, L. (2021). *Information intersections: Mis-and disinformation at the convergence of Critical Information, Critical Pedagogy, and Critical Race Theory*.

Simms, S., & Paschke-Wood, J. (2022). Academic librarians and student success: Examining changing librarian roles and attitudes. *Journal of Library Administration*, 1–28.

Siswanto, Y. I. (2022). Linking transformational leadership with job satisfaction: The mediating roles of trust and team cohesiveness. *Journal of Management Development*, *41*(2), 94–117. https://doi.org/10.1108/JMD-09-2020-0293

Slater, L. (2004). Collaboration: A framework for school improvement. *International Electronic Journal for Leadership in Learning*, *8*(5). https://eric.ed.gov/?q=%22Collaboration%3a+A+Framework+for+School+Improvement%22+&id=EJ984546

Smith, J. K. (2013). Secondary teachers and information literacy (IL): Teacher understanding and perceptions of IL in the classroom. *Library & Information Science Research*, *35*(3), 216–222. https://doi.org/10.1016/j.lisr.2013.03.003

Smith, W. L., & Zhang, P. (2009). Students' perceptions and experiences with key factors during the transition from high school to college. *College Student Journal*, *43*(2), 643–657.

Sobel, K. (2021). Motivations for continued use of critical thinking skills among first-year seminar graduates. *Teaching & Learning Inquiry*, *9*(2). https://eric.ed.gov/?q=%22mixed+methods%22+%22information+literacy%22&id=EJ1314714

Social Constructivism. (2011). https://djc25blog.wordpress.com/2011/04/13/social-constructivism/

Soria, K. M., Fransen, J., & Nackerud, S. (2013). Library use and undergraduate student outcomes: New evidence for students' retention and academic success. *Portal: Libraries and the Academy*, *13*(2), 147–164. https://doi.org/10.1353/pla.2013.0010

Soria, K. M., Fransen, J., & Nackerud, S. (2014). Stacks, serials, search engines, and students' success: First-year undergraduate students' library use, academic achievement, and retention. *The Journal of Academic Librarianship*, *40*(1), 84–91.

Soria, K. M., Fransen, J., & Nackerud, S. (2017a). Beyond books: The extended academic benefits of library use for first-year college students. *College & Research Libraries*, *78*(1), 8.

Soria, K. M., Fransen, J., & Nackerud, S. (2017b). The impact of academic library resources on undergraduates' degree completion. *College & Research Libraries*, *78*(6), 812.

Soulen, R. R. (2021). Enabling collaboration through mentorship: Examining the role of the school librarian. *School Library Research*, *24*. https://eric.ed.gov/?q=librarian+teacher+collaboration+quantitative&id=EJ1302474

Spisak, J. R. (2022). Information literacy self-efficacy versus performance: Secondary students. *Journal of Librarianship and Information Science*, 1–10. https://doi-org/10.1177/09610006221081847

Stebbing, D., Shelley, J., Warnes, M., & McMaster, C. (2019). What academics really think about information literacy. *Journal of Information Literacy*, *13*(1), 21–44. https://doi.org/10.11645/13.1.2338

Stewart, P., & Deans, M.-J. O. (2020). Practices and barriers of inter-professional collaboration with teacher-librarians and teachers: A content analysis. *School Libraries Worldwide*. https://doi.org/10.29173/slw8255

Stockham, M. G., & Collins, H. (2012). Information literacy skills for preservice teachers: Do they transfer to K-12 classrooms? *Education Libraries*, *35*(1–2), 59–72. https://doi.org/10.26443/el.v35i1-2.316

Sturge, J. (2019). Assessing readiness for school library collaboration. *Knowledge Quest*, *47*(3), 24–31.

Svensson, T., Wilk, J., & Gustafsson Åman, K. (2022). Information literacy skills and learning gaps– Students' experiences and teachers' perceptions in interdisciplinary environmental science. *The Journal of Academic Librarianship*, *48*(1), 102465. https://doi.org/10.1016/j.acalib.2021.102465

Swanson, T. (2006). Information literacy, personal epistemology, and knowledge construction: Potential and possibilities. *College and Undergraduate Libraries, 13,* 93-112.

Szekeres, J. (2004). The invisible workers. *Journal of Higher Education Policy & Management*, *26*(1), 7–22. https://doi.org/10.1080/1360080042000182500

Tandoc, E. C. (2019). The facts of fake news: A research review. *Sociology Compass*, *13*(9), e12724. https://doi.org/10.1111/soc4.12724

Tandoc, E. C., Duffy, A., Jones-Jang, S. M., & Wen Pin, W. G. (2021). Poisoning the information well?: The impact of fake news on news media credibility. *Journal of Language & Politics*, *20*(5), 783–802. https://doi.org/10.1075/jlp.21029.tan

Tandoc, E. C., Jenkins, J., & Craft, S. (2019). Fake news as a critical incident in journalism. *Journalism Practice*, *13*(6), 673–689. https://doi.org/10.1080/17512786.2018.1562958

Tandoc, E. C., & Kim, H. K. (2022). Avoiding real news, believing in fake news? Investigating pathways from information overload to misbelief. *Journalism*, *0*, 1–19. https://doi-org/10.1177/14648849221090744

Tandoc, E. C., Lim, Z. W., & Ling, R. (2018). Defining "Fake News." *Digital Journalism*, *6*(2), 137–153. https://doi.org/10.1080/21670811.2017.1360143

Tardiff, A. B. (2022). Have a CCOW: A CRAAP alternative for the internet age. *Journal of Information Literacy*, *16*(1), 119–130.

Taylor, A. (2012). A study of the information search behaviour of the millennial generation. *Information Research: An International Electronic Journal*, *17*(1). https://eric.ed.gov/?id=EJ971949

Taylor, P. D. (2015). *Promoting information literacy through teacher—School library media specialist collaboration* [Ed.D., Walden University]. https://www.proquest.com/docview/1731165170/abstract/1669DDD6610F48ACPQ/1

Thompson, J., & Cronje, J. (2001). A dynamic model of information literacy acquisition. *Mousaion, 19,* 3-14.

Tufford, L., & Newman, P. (2012). Bracketing in Qualitative Research. *Qualitative Social Work*, *11*(1), 80–96. https://doi.org/10.1177/1473325010368316

Turner, C. (2022, June 22). 6 things we've learned about how the pandemic disrupted learning. *NPR*. https://www.npr.org/2022/06/22/1105970186/pandemic-learning-loss-findings

United States Geological Survey. (2016). *Map of the Mountain West.* Retrieved June 11, 2022, from https://www.usgs.gov/media/images/map-intermountain-west

U.S. Census Bureau. (2021). *State Area Measurements and Internal Point Coordinates*. Census.Gov. https://www.census.gov/geographies/reference-files/2010/geo/state-area.html

U.S. Census Bureau. (2022). *Urban area criteria for the 2020 Census-final criteria*. Federal Register. https://www.federalregister.gov/documents/2022/03/24/2022-06180/urban-area-criteria-for-the-2020-census-final-criteria

U.S. Department of State. (2017). *Count me in: Developing inclusive international schools.* Retrieved September 18, 2022, from https://doi.org/2009-2017.state.gov/m/a/os/43980.htm

Valenti, S. J., & Lund, B. D. (2021). Preparing the instructional librarian: Representation of ACRL roles and strengths in MLS course descriptions. *College & Research Libraries*, *82*(4), 530.

Valenza, J. K., Dalal, H., Mohamad, G., Boyer, B., Berg, C., Charles, L. H., Bushby, R., Dempsey, M., Dalrymple, J., & Dziedzic-Elliott, E. (2022). "First years' information literacy backpacks: What's already packed or not packed?" *The Journal of Academic Librarianship*, *48*(4), 102566. https://doi.org/10.1016/j.acalib.2022.102566

van der Linden, S. (2022). Misinformation: Susceptibility, spread, and interventions to immunize the public. *Nature Medicine*, *28*(3), Article 3. https://doi.org/10.1038/s41591-022-01713-6

Varlejs, J., & Stec, E. (2014). Factors affecting students' information literacy as they transition from high school to college. *School Library Research*, *17*. https://eric.ed.gov/?id=EJ1022549

Vogels, E., Gelles-Watnick, R., & Massarat, N. (2022). *Teens, social media and technology 2022*. PEW Research Center. https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/

Vygotsky, L. S. (1962). *Thought and language.* MIT Press.

Vygotsky, L. S. (1978). *Mind in society.* Harvard University Press.

Wersebe, J. (2018). *A journey to improve collaboration efforts between stakeholders and teacher librarians: A mixed method study* [UC San Diego]. https://escholarship.org/uc/item/8ks5k08f

Wheeler, S. (2015). *Collaborative learning and online communities.* https://opennetworkedlearning.wordpress.com/wp-content/uploads/2015/05/onl151-steve-wheeler.pdf

Williams, D. A., & Wavell, C. (2006). *Information literacy in the classroom: Secondary school teachers' conceptions.* https://rgu-repository.worktribe.com/output/247593/information-literacy-in-the-classroom-secondary-school-teachers-conceptions

Wishkoski, R., Lundstrom, K., & Davis, E. (2019). Faculty teaching and librarian-facilitated assignment design. *Portal: Libraries and the Academy*, *19*(1), 95–126. https://doi.org/10.1353/pla.2019.0006

Withorn, T., Eslami, J., Lee, H., Clarke, M., Gardner, C. C., Springfield, C., Ospina, D., Andora, A., Castañeda, A., Mitchell, A., Kimmitt, J. M., Vermeer, W., & Haas, A. (2021). Library instruction and information literacy 2020. *Reference Services Review*, *49*(3/4), 329–418. https://doi.org/10.1108/RSR-07-2021-0046

Withorn, T., Gardner, C. C., Kimmitt, J. M., Eslami, J., Andora, A., Clarke, M., Patch, N., Guajardo, K. S., & Lunsford, S. (2019). Library instruction and information literacy 2018. *Reference Services Review*, *47*(4), 363–447. http://dx.doi.org/10.1108/RSR-08-2019-0047

Yevelson-Shorsher, A., & Bronstein, J. (2018). Three perspectives on information literacy in academia: Talking to librarians, faculty, and students. *College & Research Libraries*, *79*(4), 535–553. https://doi.org/10.5860/crl.79.4.535

Zane, M., & Tucci, V. K. (2016). Exploring the information literacy needs and values of high school chemistry teachers. *Journal of Chemical Education*, *93*(3), 406–412. https://doi.org/10.1021/acs.jchemed.5b00450

Zanin-Yost, A. (2018). Academic collaborations: Linking the role of the liaison/embedded

librarian to teaching and learning. *College & Undergraduate Libraries*, *25*(2), 150–163.

https://doi.org/10.1080/10691316.2018.1455548

Zhou, J. (2021). The role of libraries in distance learning during COVID-19. *Information*

Development, 1-12. Advance online publication.

https://doi.org/10.1177/02666669211001502

Zurkowski, P. G. (1974). *The information service environment: Relationships and priorities.*

Related Paper No. 5. Washington DC: National Commission on Libraries and

Information Science. https://eric.ed.gov/?id=eD100391

Appendix A: Survey Instrument

Modified with permission of the original researchers

Lance McGrath

From:	Dubicki, Eleonora <edubicki@monmouth.edu>
Sent:	Saturday, May 28, 2022 8:57 AM
To:	Lance McGrath
Subject:	[EXT] Re: Request to use survey instrument

Hi Lance,
Yes, you may use my survey instrument for your research. I found it fascinating to review teachers' perceptions of information literacy competency, as well as who they believe should be improving students' skills. Good luck with you dissertation.

Eleonora Dubicki

Professor Librarian (Retired)

Monmouth University Library

_____

e-mail: edubicki@monmouth.edu

Lance McGrath

From:	Hernandez, Anthony <aherna1@exchange.calstatela.edu>
Sent:	Thursday, April 6, 2023 5:50 PM
To:	Lance McGrath
Subject:	[EXT] Re: Teacher Librarian Collaboration-III

WARNING: This message did not come from The College of Idaho
Hi Lance,

I'm willing to provide my consent to use the survey.

Tony

ANTHONY HERNÁNDEZ, PH.D.
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www.calstatela.edu
"ENGAGEMENT, SERVICE, AND THE PUBLIC GOOD"

Source: Dubicki, E. (2013). Faculty perceptions of students' information literacy skills

competencies. *Journal of Information Literacy*, *7*(2), 97–125.

https://doi.org/10.11645/7.2.1852

Teacher Perceptions of Information Literacy Survey

Information literacy is a set of abilities requiring individuals to "recognize when information is
needed and have the ability to locate, evaluate, and use effectively the needed information."
(Association of College and Research Libraries)
The definitions of skills associated with Information Literacy and associated traits are:
1. Identifies and addresses information need (Associated traits: Defines a topic, develops a
   thesis statement or research question)
2. Accesses information effectively and efficiently (Associated traits: Identifies key words,
   creates a search strategy, modifies search to broaden or narrow down topic)
3. Evaluates and thinks critically about information (Associated traits: selects main ideas from
   text, restates ideas in own words, evaluates information for
   relevance/topic/credibility/currency, recognizes bias, determines if additional information is
   needed, draws conclusions based on information gathered)
4. Uses information effectively for a specific purpose (Associated traits:
   Summarizes/synthesizes information from a variety of sources, integrates quotations and
   paraphrasing, communicates information gathered effectively)
5. Uses information ethically and legally (Associated traits: Understands plagiarism, selects and
   uses appropriate documentation style (MLA, APA))

There are two parts to the survey: Part 1 has 8 demographic questions and 25 questions about
teacher perceptions. Part 2 has 35 questions about teacher-librarian collaboration. The
survey should take between 20-30 minutes to complete.

Part 1 – Demographics and Teacher Perceptions
Demographic Information
1. **Please identify the state where you teach:**
   ( ) Idaho
   ( ) Montana
   ( ) Nevada
   ( ) Utah
   ( ) Wyoming
2. **Please identify your school type:**
   ( ) Public high school
   ( ) Private high school
   ( ) Public charter high school
   ( ) Alternative high school
3. **Please indicate your school's classification:**
   ( ) Urban
   ( ) Rural

4. **Please indicate your school's size:**
   ( ) Small – 500 students or fewer
   ( ) Medium – 500 to 1,000 students
   ( ) Large – Over 1,000 students
5. **Please identify your primary teaching discipline, check all that apply:**
   ( ) English/Language Arts
   ( ) AP English/Language Arts
   ( ) History
   ( ) AP History
   ( ) Political Science
   ( ) AP Political Science
   ( ) Life sciences
   ( ) AP Life sciences
   ( ) Physical sciences
   ( ) AP Physical sciences
   ( ) Mathematics
   ( ) AP Mathematics
   ( ) Humanities (art, drama, music, etc.)
   ( ) AP Humanities
   ( ) Other (please specify)- (open response)
6. **Please identify the grade level you teach (select all that apply):**
   ( ) Grade twelve
   ( ) Grade eleven
7. **How many years have you been teaching?**
   ( ) Less than 3 years
   ( ) 3-5 years
   ( ) 6-9 years
   ( ) More than 10 years
8. **What is the highest degree you have completed?**
   ( ) Bachelors
   ( ) Masters
   ( ) Specialist
   ( ) Doctorate

Teacher Perceptions
1. **Are you familiar with the concept of Information Literacy (IL)?**
   Please choose all that apply:

   ( ) I have never heard of information literacy
   ( ) I have heard of information literacy
   ( ) I have similar learning outcomes for my classes
   ( ) I have attended an information literacy workshop
   ( ) I work with school librarians on building information literacy skills in my students
   ( ) Other: (Please explain – Open text response)

2. **What other terms do you use instead of information literacy to describe skills students need to complete research?**
Please write your answer here: (Open text response)

Researchers (Dubicki, et al.) have identified five information literacy (IL) skills. I am interested *in how you perceive* their importance in terms of grade 11-12 school research assignments.

(Please choose the appropriate response for each item)
3. **IL Skill: Identifies and addresses information need** (Associated traits: Defines a topic, develops a thesis statement or research question)
( ) Not at all important in completing high school research at the junior/senior level
( ) Not too important in completing high school research at the junior/senior level
( ) Somewhat important in completing high school research at the junior/senior level
( ) Very important in completing high school research at the junior/senior level
4. **IL Skill: Accesses information effectively and efficiently** (Associated traits: Identifies key words, creates a search strategy, modifies search to broaden or narrow down topic)
( ) Not at all important in completing high school research at the junior/senior level
( ) Not too important in completing high school research at the junior/senior level
( ) Somewhat important in completing high school research at the junior/senior level
( ) Very important in completing high school research at the junior/senior level
5. **IL Skill: Evaluates and thinks critically about information** (Associated traits: selects main ideas from text, restates ideas in own words, evaluates information for relevance/topic/credibility/currency, recognizes bias, determines if additional information is needed, draws conclusions based on information gathered)
( ) Not at all important in completing high school research at the junior/senior level
( ) Not too important in completing high school research at the junior/senior level
( ) Somewhat important in completing high school research at the junior/senior level
( ) Very important in completing high school research at the junior/senior level
6. **IL Skill: Uses information effectively for a specific purpose** (Associated traits: Summarizes/synthesizes information from a variety of sources, integrates quotations and paraphrasing, communicates information gathered effectively)
( ) Not at all important in completing high school research at the junior/senior level
( ) Not too important in completing high school research at the junior/senior level
( ) Somewhat important in completing high school research at the junior/senior level
( ) Very important in completing high school research at the junior/senior level
7. **IL Skill: Uses information ethically and legally** (Associated traits: Understands plagiarism, selects and uses appropriate documentation style (MLA, APA))
( ) Not at all important in completing high school research at the junior/senior level
( ) Not too important in completing high school research at the junior/senior level
( ) Somewhat important in completing high school research at the junior/senior level
( ) Very important in completing high school research at the junior/senior level

Thank you for *rating the importance* of information literacy skills.

8. **Do you *TEACH* IL skills as part of the *stated learning outcomes* for your classes?**

Identifies and addresses information need
( ) Yes – I teach this skill as one of the stated learning outcomes in my classes.
( ) No – This skill is not part of the stated learning outcomes for my classes.
Accesses information effectively and efficiently
( ) Yes– I teach this skill as one of the stated learning outcomes in my classes.
( ) No – This skill is not part of the stated learning outcomes for my classes.
Evaluates and thinks critically about information
( ) Yes– I teach this skill as one of the stated learning outcomes in my classes.
( ) No – This skill is not part of the stated learning outcomes for my classes.
Uses information effectively for a specific purpose
( ) Yes– I teach this skill as one of the stated learning outcomes in my classes.
( ) No – This skill is not part of the stated learning outcomes for my classes.
Uses information ethically and legally
( ) Yes– I teach this skill as one of the stated learning outcomes in my classes.
( ) No – This skill is not part of the stated learning outcomes for my classes.

If you teach IL SKILLS, I am interested in your *teaching confidence* for each of them.
9. **I rate my *teaching confidence for:***
Identifies and addresses information need
( ) Confident
( ) Somewhat confident
( ) Needing professional development
( ) This skill is not part of the stated learning outcomes in my classes.
Accesses information effectively and efficiently
( ) Confident
( ) Somewhat confident
( ) Needing professional development
( ) This skill is not part of the stated learning outcomes in my classes.
Evaluates and thinks critically about information
( ) Confident
( ) Somewhat confident
( ) Needing professional development
( ) This skill is not part of the stated learning outcomes in my classes.
Uses information effectively for a specific purpose
( ) Confident
( ) Somewhat confident
( ) Needing professional development
( ) This skill is not part of the stated learning outcomes in my classes.
Uses information ethically and legally
( ) Confident
( ) Somewhat confident
( ) Needing professional development
( ) This skill is not part of the stated learning outcomes in my classes.

10. **What resources, training, or teaching conditions would enhance your IL SKILLS teaching?**
    Please provide your answer here: (Open response)
11. **What barriers prevent you from enhancing your IL SKILLS teaching?**
    Please provide your answer here: (Open response)
12. **If you *DO NOT* teach IL SKILLS, but believe IL SKILLS should be part of the stated learning outcomes for your classes, what resources, training, or teaching conditions would make it possible?**
    Please provide your answer here: (Open response)
13. **If you *DO NOT* teach IL SKILLS, but believe IL SKILLS should be part of the stated learning outcomes for your classes, what barriers prevent you from teaching IL SKILLS?**
    Please provide your answer here: (Open response)

    Even if you do not teach information literacy (IL) skills, I am interested in *your perception* of student IL SKILL competency.
    Please rate the IL SKILL competency of students in your school:
14. **Identifies and addresses information need** (Associated traits: Defines a topic, develops a thesis statement or research question).
    ( ) Poor – Students cannot accomplish any of the examples.
    ( ) Satisfactory – Students can define a topic.
    ( ) Good – Students can define a topic and develop a thesis statement.
    ( ) Excellent – Students can accomplish all of the examples.
15. **Accesses information effectively and efficiently** (Associated traits: Identifies key words, creates a search strategy, modifies search to broaden or narrow down topic)
    ( ) Poor – Students cannot accomplish any of the examples.
    ( ) Satisfactory – Students can identify key words.
    ( ) Good – Students can identify key words and create a search strategy.
    ( ) Excellent – Students can accomplish all of the examples.
16. **Evaluates and thinks critically about information** (Associated traits: selects main ideas from text, restates ideas in own words, evaluates information for relevance/topic/credibility/currency, recognizes bias, determines if additional information is needed, draws conclusions based on information gathered)
    ( ) Poor – Students cannot accomplish any of the examples.
    ( ) Satisfactory – Students can accomplish two of the examples.
    ( ) Good – Students can accomplish most of the examples.
    ( ) Excellent – Students can accomplish all of the examples.
17. **Uses information effectively for a specific purpose** (Associated traits: Summarizes/synthesizes information from a variety of sources, integrates quotations and paraphrasing, communicates information gathered effectively)
    ( ) Poor – Students cannot accomplish any of the examples.
    ( ) Satisfactory – Students can summarize information from a variety of sources.
    ( ) Good – Students can accomplish two of the examples.
    ( ) Excellent – Students can accomplish all of the examples.
18. **Uses information ethically and legally** (Associated traits: Understands plagiarism, selects and uses appropriate documentation style (MLA, APA))

( ) Poor – Students cannot accomplish any of the examples.
( ) Satisfactory – Students understand plagiarism.
( ) Good – Students can accomplish two of the examples.
( ) Excellent – Students can accomplish all of the examples.

19. **Please indicate your level of agreement with the following statement.**
Overall, students _should be_ INFORMATION LITERATE (achieve all five information literacy skills) by the time they graduate:
( ) Strongly disagree
( ) Disagree
( ) Agree
( ) Strongly agree

20. **Please indicate you level of agreement with the following statement.**
Overall, I believe students _are_ INFORMATION LITERATE (achieve all five information literacy skills) when they graduate:
( ) Strongly disagree
( ) Disagree
( ) Agree
( ) Strongly agree

Part 2 – Teacher-Librarian Collaboration
The next section deals with school libraries and school librarians.

21. **Please indicate the status of your high school library:**
( ) It is well-equipped with technology and print inventory and integral to student IL SKILL learning.
( ) It needs updated technology and/or print inventory in order to be considered integral to student IL SKILL learning.
( ) It is inadequate in terms of technology and/or print inventory and incapable of supporting student IL SKILL learning.

22. **Please indicate the staffing of your high school library:**
( ) It has a full-time, professionally certified librarian capable of supporting IL SKILL learning.
( ) It has a full-time librarian who is not certified who offers limited IL SKILL support.
( ) It has a part-time, professionally certified librarian who offers limited IL SKILL learning support.
( ) It has a part-time, non-certified librarian who cannot support IL SKILL learning.
( ) A volunteer manages the library.

23. **How important is it for students to understand how to use library services as part of IL SKILLs development?**
( ) Very important because the library offers technology and print inventory essential to IL SKILL learning.
( ) Important because the library supports IL SKILL learning.
( ) Somewhat important because the library is part of an overall IL SKILL learning program.
( ) Not very important because students can access everything needed for IL SKILL learning with personal technology.

24. **How important is it for students to have access to a professionally certified librarian as part of IL SKILL development?**
( ) Very important because the librarian has IL SKILL knowledge that is superior to a classroom teacher.
( ) Important because the librarian enriches IL SKILL learning assigned by a classroom teacher.
( ) Somewhat important because the librarian is available to troubleshoot IL SKILL learning.
( ) Not very important because students can access everything needed for IL SKILL learning with personal technology.

25. **How important is it for you to collaborate with your school librarian in terms of IL SKILL learning?**
( ) Very important because the librarian has IL SKILL knowledge that is superior to a classroom teacher.
( ) Important because the librarian enriches IL SKILL learning assigned by a classroom teacher.
( ) Somewhat important because the librarian is available to troubleshoot IL SKILL learning.
( ) Not very important because students can access everything needed for IL SKILL learning with personal technology.

This section deals with how teachers collaborate with school librarians.
There are two parts to each teacher-librarian collaboration question below:
Frequency and **Importance to Student IL SKILL Learning**
Please indicate your level of agreement with the collaboration statements according to the following criteria for each:
Regarding how often the form of collaboration occurs on a *Frequency Scale of:* Never to Most Frequently
Regarding the value of collaboration to students learning IL SKILL on an *Importance Scale of:* Not at all important to Very important.
(This survey is based on teacher-librarian collaboration research of Montiel-Overall & Hernandez)

1. **Talking with the librarian to arrange time periods for students to use the library to learn about IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

2. **Scheduling time for the librarian to work with students in the library to teach IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

3. **Setting up a time with the librarian when groups of students can go to the library for free reading to teach IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

4. **Making sure that class library times don't conflict with times when other classes use the library to teach IL SKILLs.**

Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

5. **Scheduling events (e.g., games, workshops) in the library for students with the librarian to teach IL SKILLs.**
   Frequency: Never 1 2 3 4 Most Frequently
   Importance to student learning: Not at all important 1 2 3 4 Very Important

6. **Setting up convenient times to use the library for extracurricular activities (e.g., clubs) to teach IL SKILLs.**
   Frequency: Never 1 2 3 4 Most Frequently
   Importance to student learning: Not at all important 1 2 3 4 Very Important

7. **Identifying with the librarian materials (e.g., books, websites, references) needed for teaching IL SKILLs.**
   Frequency: Never 1 2 3 4 Most Frequently
   Importance to student learning: Not at all important 1 2 3 4 Very Important

8. **Asking the librarian to provide a list of library resources needed to teach a lesson on IL SKILLs.**
   Frequency: Never 1 2 3 4 Most Frequently
   Importance to student learning: Not at all important 1 2 3 4 Very Important

9. **Dividing responsibilities for a lesson (e.g., the teacher will teach a lesson using resources provided by the librarian) to teach IL SKILLs.**
   Frequency: Never 1 2 3 4 Most Frequently
   Importance to student learning: Not at all important 1 2 3 4 Very Important

10. **Talking with the librarian about new library resources available for instruction to teach IL SKILLs.**
    Frequency: Never 1 2 3 4 Most Frequently
    Importance to student learning: Not at all important 1 2 3 5 Very Important

11. **Asking the librarian to provide references that can be used by students to learn IL SKILLs.**
    Frequency: Never 1 2 3 4 Most Frequently
    Importance to student learning: Not at all important 1 2 3 4 Very Important

12. **Spending time with the librarian identifying library resources that are helpful in teaching IL SKILLs.**
    Frequency: Never 1 2 3 4 Most Frequently
    Importance to student learning: Not at all important 1 2 3 4 Very Important

13. **Meeting with the librarian to plan objectives for a lesson to teach IL SKILLs.**
    Frequency: Never 1 2 3 4 Most Frequently
    Importance to student learning: Not at all important 1 2 3 4 Very Important

14. **Sharing ideas with the librarian for teaching a lesson together on IL SKILLs.**
    Frequency: Never 1 2 3 4 Most Frequently
    Importance to student learning: Not at all important 1 2 3 4 Very Important

15. **Working with the librarian to discuss a lesson that will be jointly taught about IL SKILLs.**
    Frequency: Never 1 2 3 4 Most Frequently
    Importance to student learning: Not at all important 1 2 3 4 Very Important

16. **Spending time with the librarian planning instructional activities in the library about IL SKILLs.**

Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

17. **Working with the librarian to incorporate library skills into classroom lessons about IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

18. **Talking to the librarian about how well students understand what they are learning about IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

19. **Planning lessons with the librarian to teach IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

20. **Developing objectives for instruction with the librarian to teach IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

21. **Teaching together with the librarian (e.g., implementing lessons that integrate the academic curriculum such as science and social studies with library instruction) to teach IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

22. **Participating in curriculum planning with the librarian to integrate library instruction into classroom curriculum to teach IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

23. **Assessing student IL SKILL progress with the librarian.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

24. **Discussing with the librarian how well students understand what they are learning about IL SKILLs.**
Frequency: Never 1 2 3 4 Most Frequently
Importance to student learning: Not at all important 1 2 3 4 Very Important

25. **Rank these teacher-librarian collaboration activities in terms of your interactions with your school librarian, with "1" being your *most frequent* interaction with your school librarian to teach IL SKILLs and "4" being the *"least frequent"* interaction with your school librarian to teach IL SKILLs.**
( ) *Integrated Instruction* – This facet involves high-level collaboration between teachers and school librarians in which jointly planned and implemented instruction occurs.
( ) *Coordination* – This facet is at the low end of the continuum and involves activities in which teachers and school librarians work together to schedule or arrange time for students to participate in library activities or events (e.g., book fairs).
( ) *Cooperation* – This facet reflects traditional collaborative endeavors in which teachers request school librarians' assistance in finding resources for instruction.
( ) *Integrated Curriculum* – This facet is at the high end of the continuum and reflects school librarians' involvement with teachers in curriculum planning and assessment of students.

26. **Referring to your least frequent collaboration activity, rank the barriers that prevent it, with "1" being the most dominant and "4" being the least dominant.**
    ( ) Preparation time.
    ( ) Administrator support.
    ( ) The librarian.
    ( ) School culture.
27. **Please add anything about student IL SKILLs learning that this survey has not addressed. Thank you for your participation.**

Appendix B: Electronic Informed Consent

Dear prospective survey participant:

You are invited to participate in a research project about high school teachers' perceptions of student information literacy competency and the factors that influence the development of student information literacy competency. This online survey should take about 15-20 minutes to complete. Participation is voluntary, and responses will be kept confidential to the degree permitted by the technology being used. The survey is designed to be anonymous. Neither the researcher nor others will be able to identify participants from their responses to the survey. If you should choose to provide personally identifiable information in an open response section, that information will be kept confidential, any identifying information will be assigned a pseudonym.

You have the option to not respond to any questions that you choose. Participation or nonparticipation will not impact your relationship with your employer. Submission of the survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age.

There are risks and benefits in everything we do. The risks to the participants include a loss of time or a sense of frustration or discomfort. Your time is valuable, and you may elect to skip any questions you wish or end your participation at any time for any reason. You may also feel frustrated or uncomfortable as your teaching practices and the information literacy competencies of your students. However, by participating in this survey, you will help to contribute to the body of educational research concerned with high school teacher perceptions of student information literacy skills. Specifically, your information will contribute to research investigating high school teacher perceptions of student information literacy skills.

If you have any questions or concerns about the study, please contact the principal investigator, Lance McGrath, via email at lrmcgrath@nnu.edu or the faculty advisor, Dr. Joki at rjoki@nnu.edu. If you have any questions regarding your rights as a research subject, also contact Dr. Joki at rjoki@nnu.edu

___ **I affirm I am at least 18 years of age and agree to participate in the survey.** (Follow link to visit the survey site and select the "Begin Survey" button to begin the survey.)
     [INSERT LINK TO QUALTRICS SURVEY HERE]
___ **I do not wish to participate in the survey.** (Delete this email or, if, after visiting the survey on the Internet, you may choose to not begin the survey or you may exit the survey at any time to quit. This will exit the survey.)

Appendix C: Electronic Recruiting Email

Email text
Greetings!

My name is Lance McGrath and I am a doctoral student at Northwest Nazarene University studying high school teachers' perceptions of student information literacy competency and the factors that influence the development of student information literacy competency. You are receiving this email because you have been identified as a high school teacher who teaches in a discipline that incorporates information literacy instruction or awareness.

I am seeking teachers who are willing to complete a 42-question survey about their interaction with information literacy in the curriculum and their perspectives about student information literacy skills. The questions will focus on your interaction with information literacy in the curriculum and your perceptions about student information literacy skills.

Thank you for considering participation in this study. If you have any questions, please email me at lrmcgrath@nnu.edu.

Thanks and regards,
Lance McGrath

Appendix D: Social Media Recruiting Message
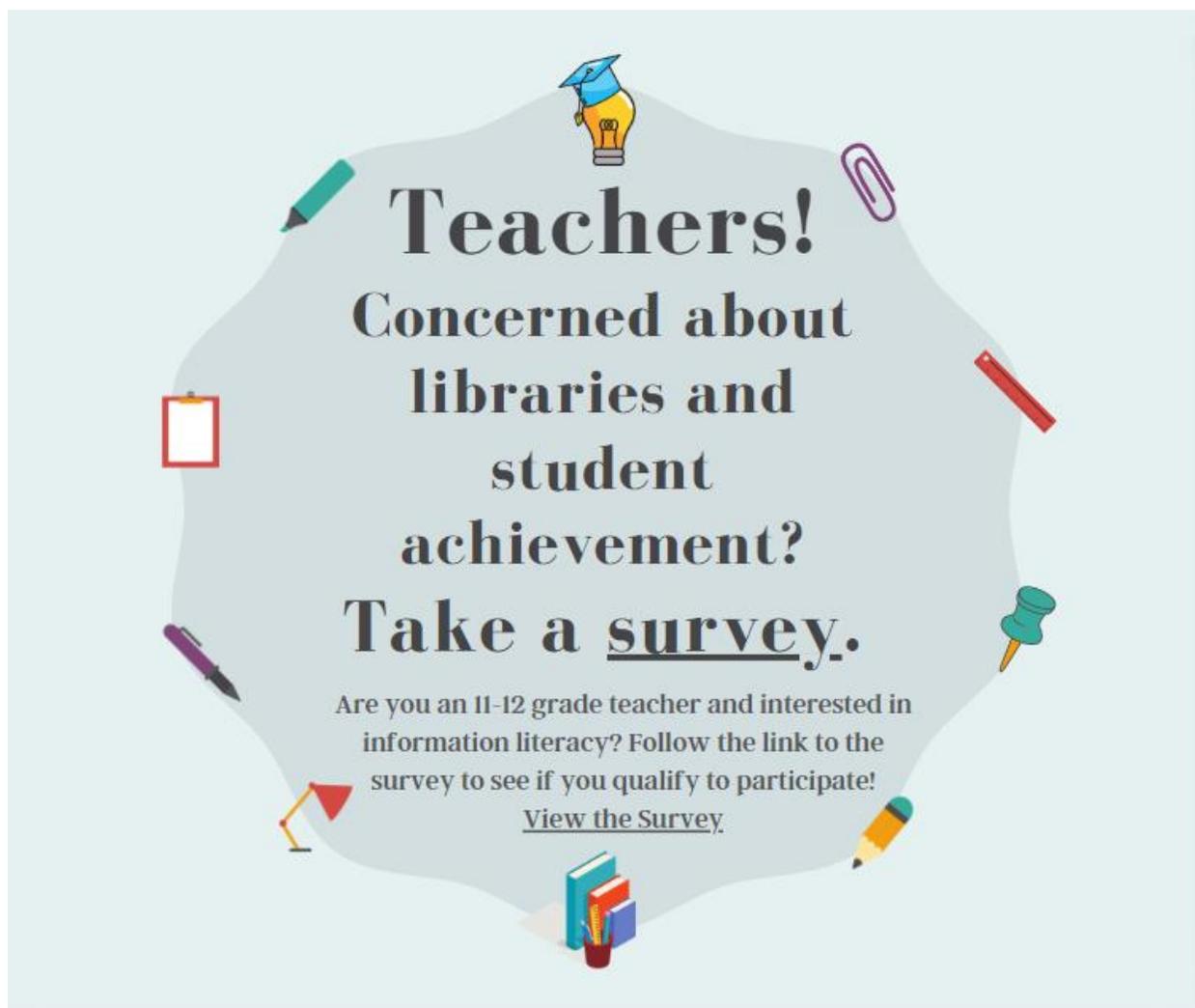
Teachers!

Concerned about libraries and student achievement?

Take a <u>survey</u>.

Are you an 11-12 grade teacher and interested in information literacy? Follow the link to the survey to see if you qualify to participate!

<u>View the Survey</u>

Appendix E: Follow-up Interview Questions

Ice-breaker section
Thank you for participating in my study.
1. Please describe your current teaching position, the grades you teach and your subject area assignments.
2. Please tell me if any of your classes are "advanced placement" (**AP, Dual Credit, International Baccalaureate**).
3. How many years have you been teaching?
4. What is your highest degree?

I would like some information about your school.
5. Is it considered rural or urban?
6. Is it considered a small high school (500 or fewer students), medium-sized high school (500-1,000 students), or a large high school (over 1,000 students)?

Now I would like some information about your school's librarian and library.
7. Is the librarian a full-time professionally certified librarian? If not, how would you describe the librarian?
8. How would you describe the library's technology?
9. How would you describe the library's print collection?
10. How would you describe the library in terms of student use?

Teacher Confidence – Information Literacy section
I would like to shift gears and discuss information literacy with you.
11. Please describe your pre-service education with information literacy.
12. Please describe your professional development with information literacy.
13. Please describe your self-taught information literacy experiences.
14. Is there anything else you would like to add?

Researchers have identified five information literacy skills and associated traits. The skills and some associated traits are:
- **Identifies and addresses information need** (Associated traits: Defines a topic, develops a thesis statement or research question)
- **Accesses information effectively and efficiently** (Associated traits: Identifies key words, creates a search strategy, modifies search to broaden or narrow down topic)
- **Evaluates and thinks critically about information** (Associated traits: selects main ideas from text, restates ideas in own words, evaluates information for relevance/topic/credibility/currency, recognizes bias, determines if additional information is needed, draws conclusions based on information gathered)
- **Uses information effectively for a specific purpose** (Associated traits: Summarizes/synthesizes information from a variety of sources, integrates quotations and paraphrasing, communicates information gathered effectively)
- **Uses information ethically and legally** (Associated traits: Understands plagiarism, selects and uses appropriate documentation style (MLA, APA))

Please rate your ability to teach each of the above information literacy skills:
15. Identifies and addresses information need
    Highly confident/Confident/Somewhat confident/Need professional development

16. Accesses information effectively and efficiently
    Highly confident/Confident/Somewhat confident/Need professional development
17. Evaluates and thinks critically about information
    Highly confident/Confident/Somewhat confident/Need professional development
18. Uses information effectively for a specific purpose
    Highly confident/Confident/Somewhat confident/Need professional development
19. Uses information ethically and legally
    Highly confident/Confident/Somewhat confident/Need professional development

Regarding the five information literacy skills, please describe the instructional methods you use to develop student understanding of and competency for each of the five skills (for example: lecture, professionally prepared media, sending students to a learning lab, team teaching, collaboration with the school librarian, or other methods).
    Follow-up probes: Describe the source of the media. Describe how team teaching is arranged. Describe the learning lab use. Describe how collaboration with the school librarian is arranged. Describe the other methods used.

Perceptions of Student IL Competency section

Refer to the five information literacy skills. Please rate the competency of your students on each, using the following scale:

20. Identifies and addresses information need
    Highly competent/Competent/Somewhat competent/Not competent
21. Accesses information effectively and efficiently
    Highly competent/Competent/Somewhat competent/Not competent
22. Evaluates and thinks critically about information
    Highly competent/Competent/Somewhat competent/Not competent
23. Uses information effectively for a specific purpose
    Highly competent/Competent/Somewhat competent/Not competent
24. Uses information ethically and legally
    Highly competent/Competent/Somewhat competent/Not competent

Follow-up probes: For any "Somewhat competent or Not competent" response, ask: Please describe teaching strategies that could be used to increase competency.

Regarding the five information literacy skills, please rank the following barriers which impact student information literacy learning:

25. Identifies and addresses information need
    Insufficient technology/Vague curriculum/Level of administrator support/Not enough teaching time/Not enough professional development/Level of librarian support/Not enough preparation time/Other:
26. Accesses information effectively and efficiently
    Insufficient technology/Vague curriculum/Level of administrator support/Not enough teaching time/Not enough professional development/Level of librarian support/Not enough preparation time/Other:
27. Evaluates and thinks critically about information
    Insufficient technology/Vague curriculum/Level of administrator support/Not enough teaching time/Not enough professional development/Level of librarian support/Not enough preparation time/Other:

28. Uses information effectively for a specific purpose
    Insufficient technology/Vague curriculum/Level of administrator support/Not enough teaching time/Not enough professional development/Level of librarian support/Not enough preparation time/Other:
29. Uses information ethically and legally
    Insufficient technology/Vague curriculum/Level of administrator support/Not enough teaching time/Not enough professional development/Level of librarian support/Not enough preparation time/Other:

Follow-up probes: Which barriers have the greatest impact on student information literacy learning? Please describe what would minimize or eliminate that barrier/these barriers.

Teacher Librarian Collaboration section
Now, I want to discuss teacher librarian collaboration.

30. Please describe any type of collaboration you have with your school librarian.
31. Please describe the strengths of your librarian in terms of library resources and collaboration.
32. Researchers have identified four types of teacher-librarian collaboration. Please rate the level of collaboration you have with your school librarian on the following:

- Coordination: Working together to schedule and arrange time for students to engage in library activities or events (Associated traits: Infrequent interaction, interactions usually initiated by librarian, generally limited to scheduling for library events).
  High level of collaboration/Frequent level of collaboration/Occasional level of collaboration/No collaboration
- Cooperation: Represents the traditional level of collaboration between teachers and librarians in which librarians provide assistance finding instructional resources (Traits: Frequent interaction, interactions usually initiated by teacher).
  High level of collaboration/Frequent level of collaboration/Occasional level of collaboration/No collaboration
- Integrated Instruction: Represents a high level of collaboration between teachers and librarians which involves instruction that is jointly planned and implemented (Traits: Regular interaction, teacher or librarian initiates interactions equally, librarian viewed as educational peer).
  High level of collaboration/Frequent level of collaboration/Occasional level of collaboration/No collaboration
- Integrated Curriculum: Involves the school librarian in curriculum planning and assessment of students (Traits: Regular interaction, teacher or librarian initiates interactions equally, librarian is viewed as essential educational peer).
  High level of collaboration/Frequent level of collaboration/Occasional level of collaboration/No collaboration

Follow-up probes: Please describe any barriers that impact collaborating with your librarian. What would have to change to improve collaboration?
Anything to add?
(End of interview.)

Appendix F: Normal Q-Q Plots

Figure F1

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for PrimaryTD_4Groups = ELA
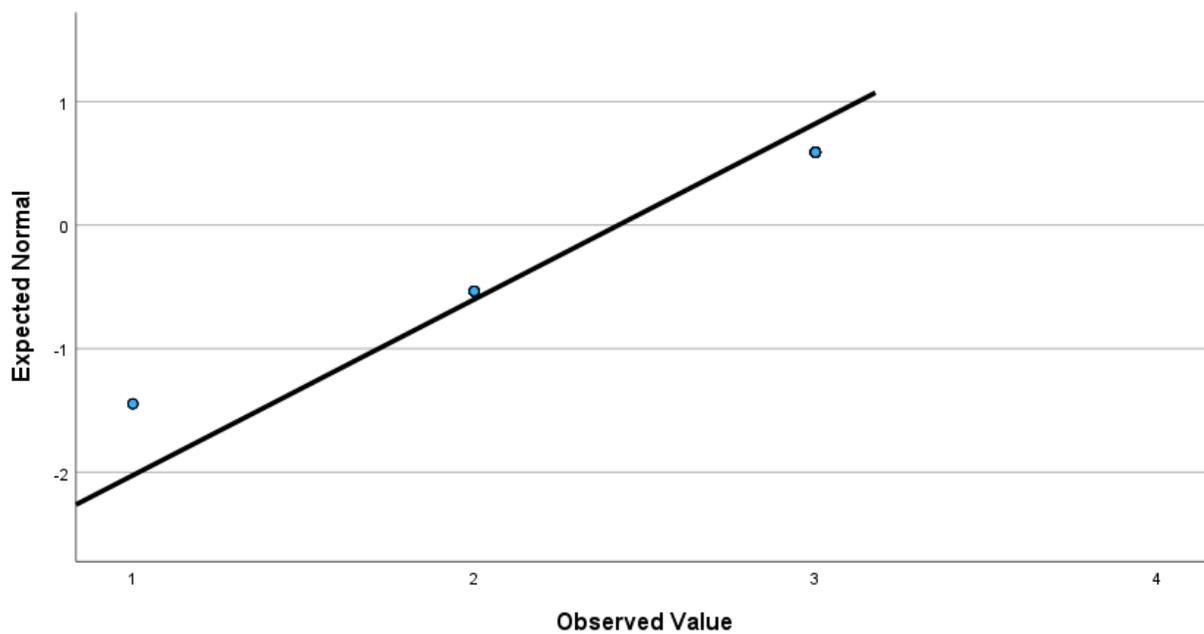
Figure F2

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for PrimaryTD_4Groups = Math/Science
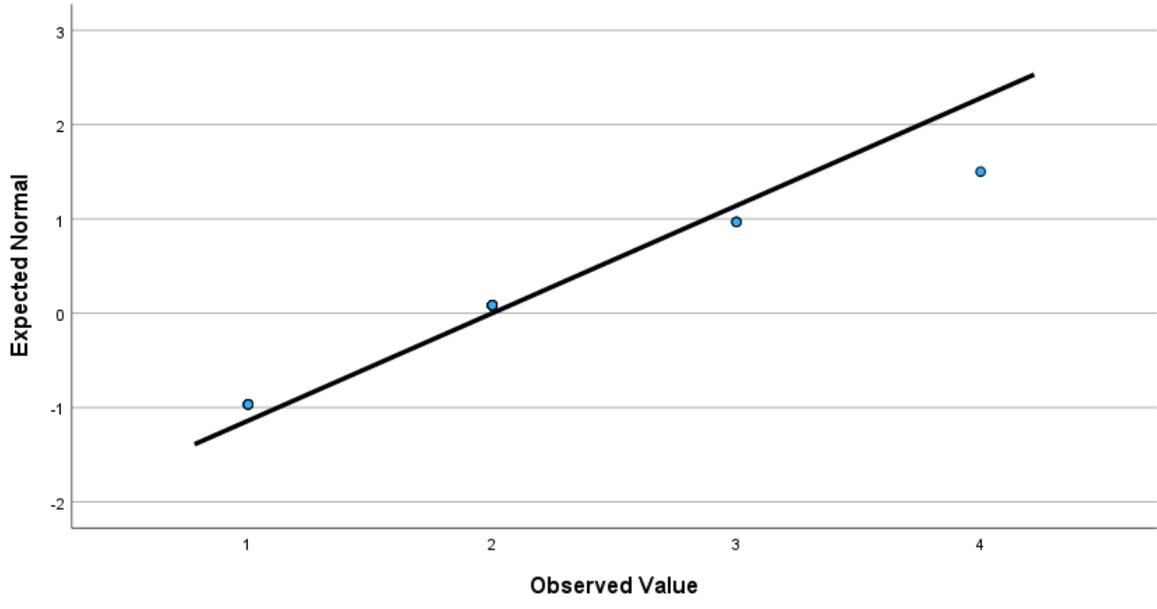
Figure F3

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for PrimaryTD_4Groups = Humanities
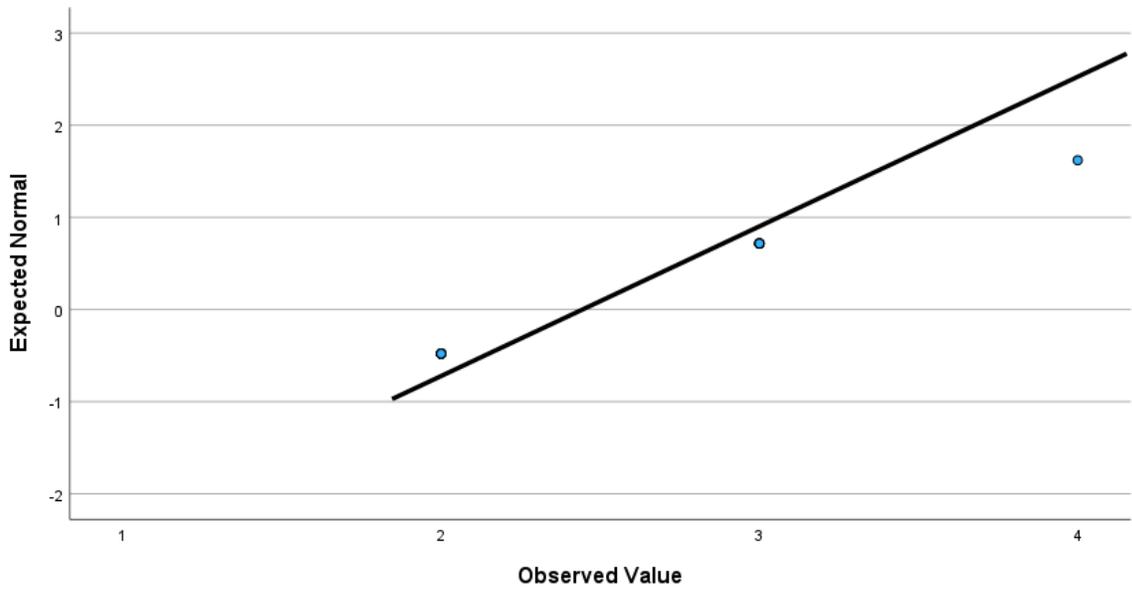
Figure F4

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for PrimaryTD_4Groups = Other
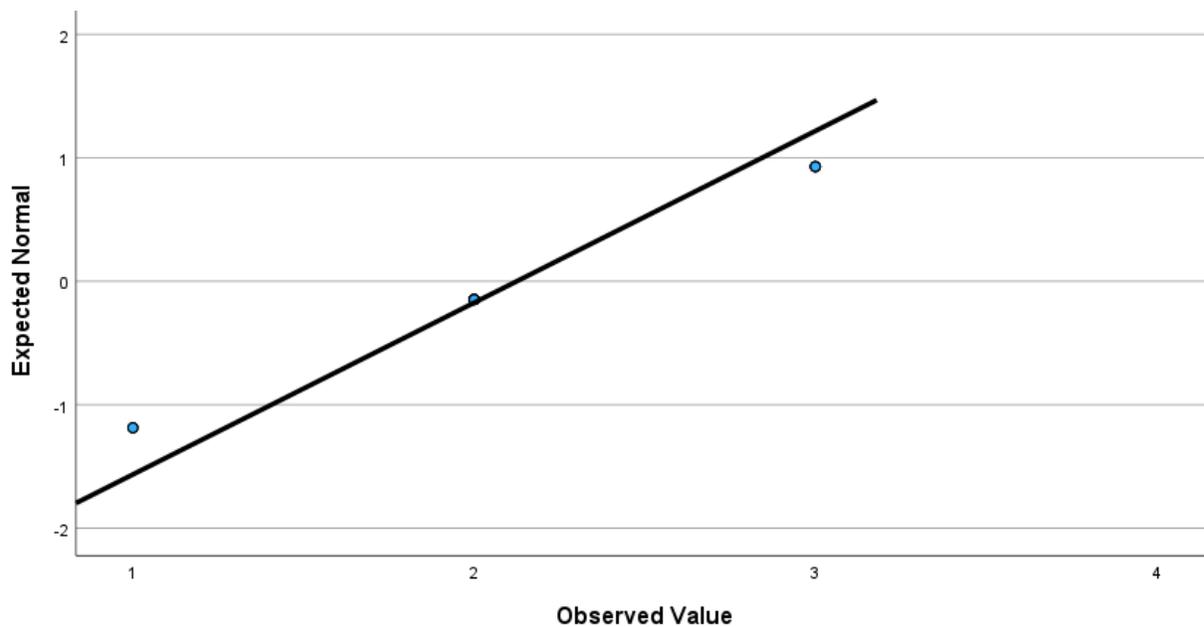
Figure F5

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for PrimaryTD_4Groups = ELA
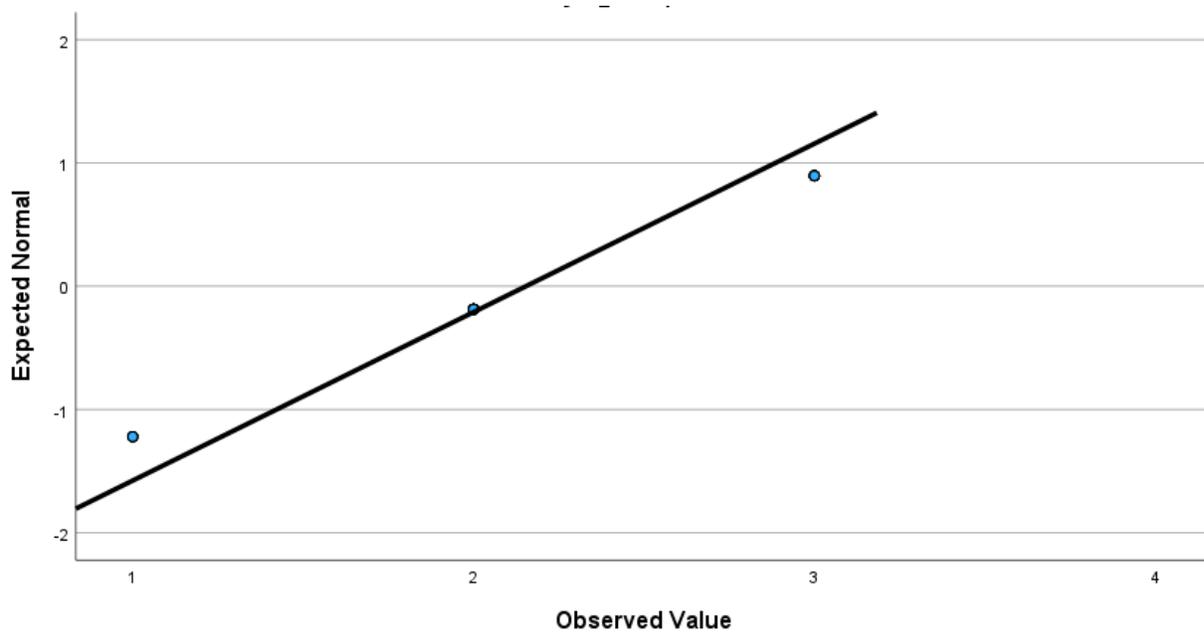
Figure F6

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for PrimaryTD_4Groups = Humanities
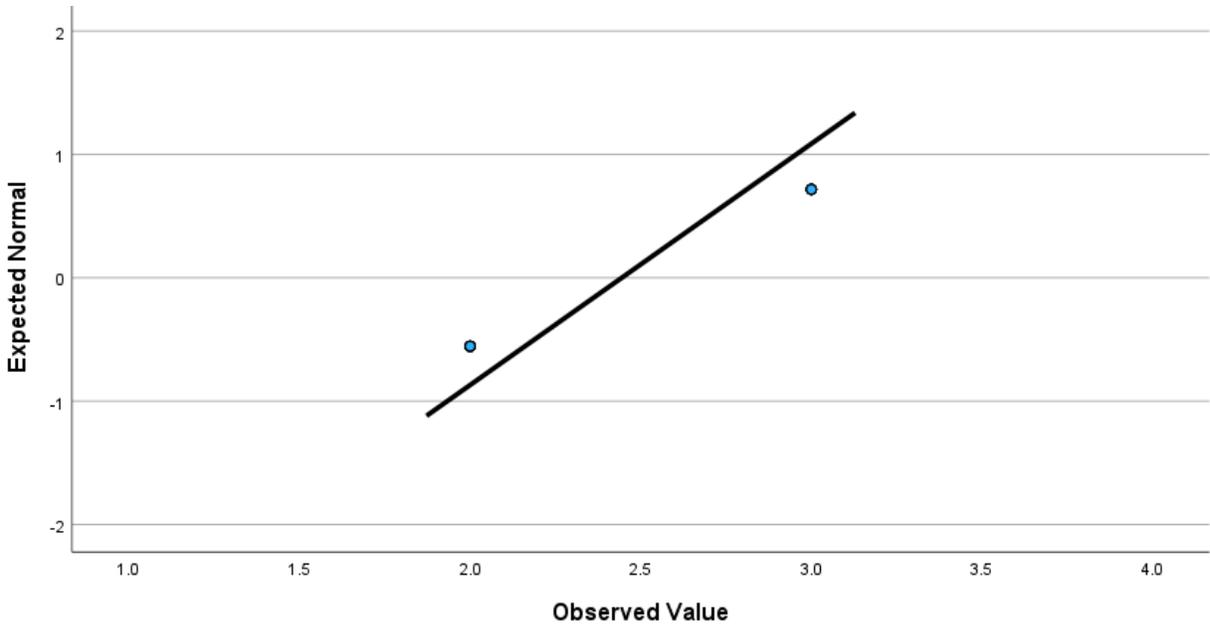
Figure F7

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for PrimaryTD_4Groups = Math/Science
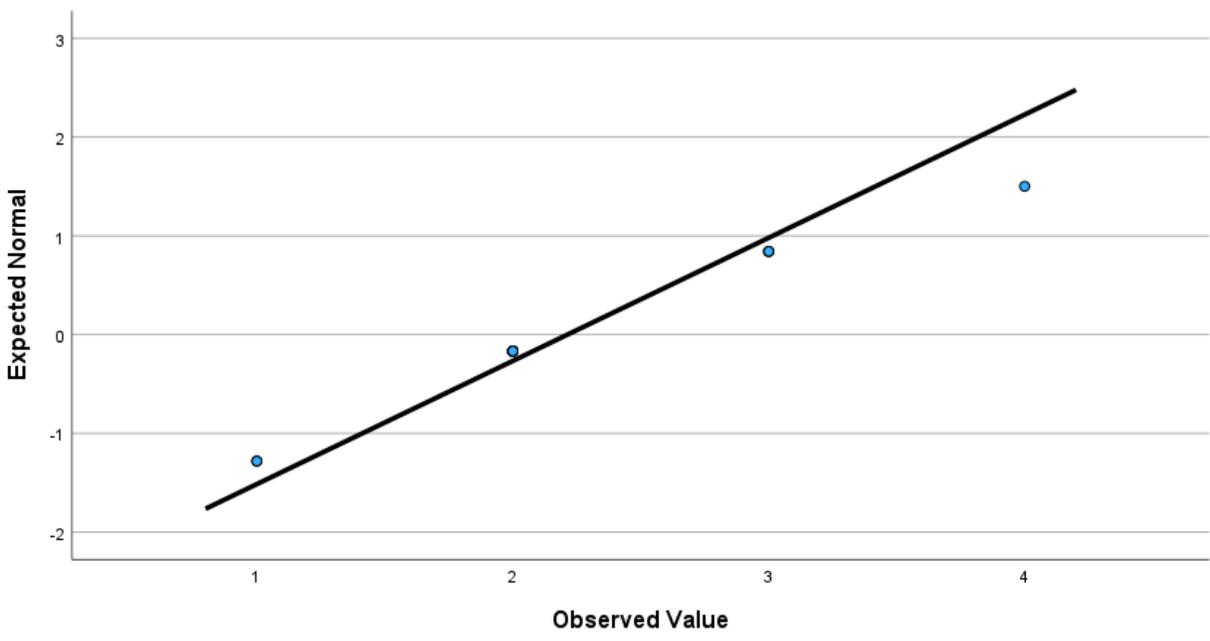
Figure F8

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for PrimaryTD_4Groups = Other
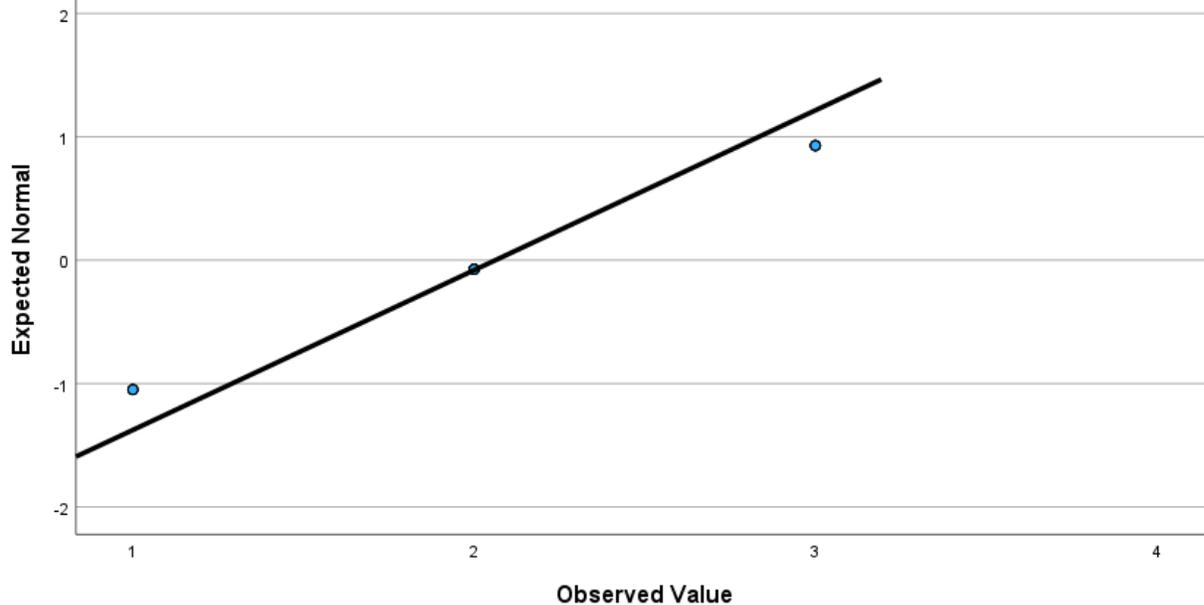
Figure F9

Normal Q-Q Plot of Student IL SKILLS – Evals and Critically About Info for PrimaryTD_4Groups = ELA
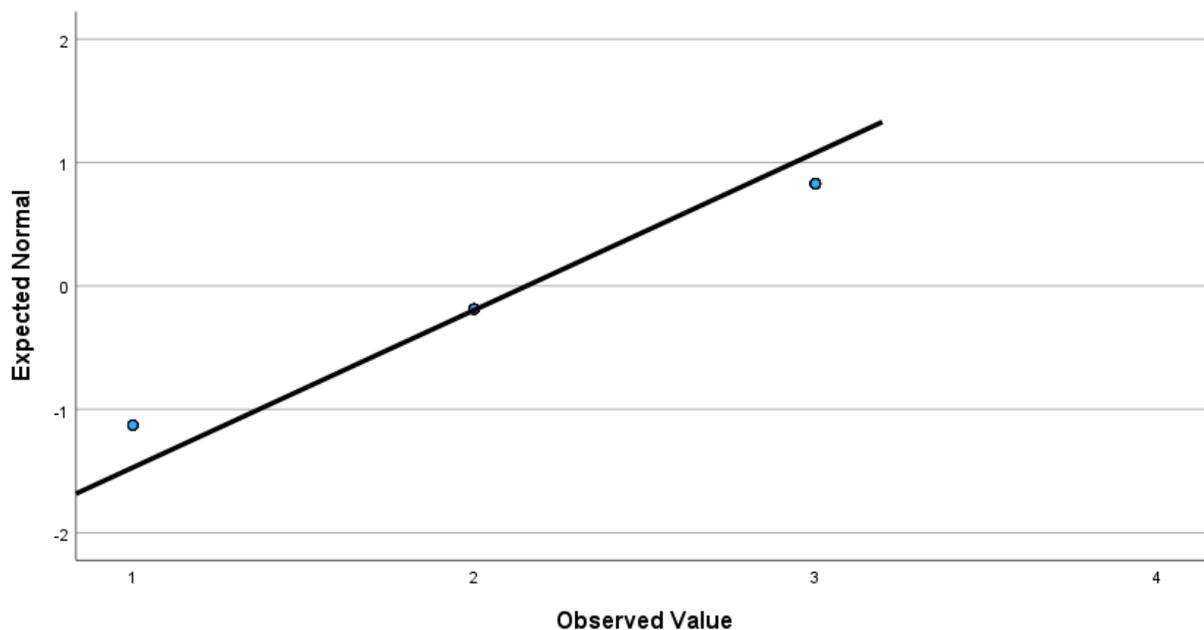
Figure F10

Normal Q-Q Plot of Student IL SKILLS – Evals and Critically About Info for PrimaryTD_4Groups = Humanities
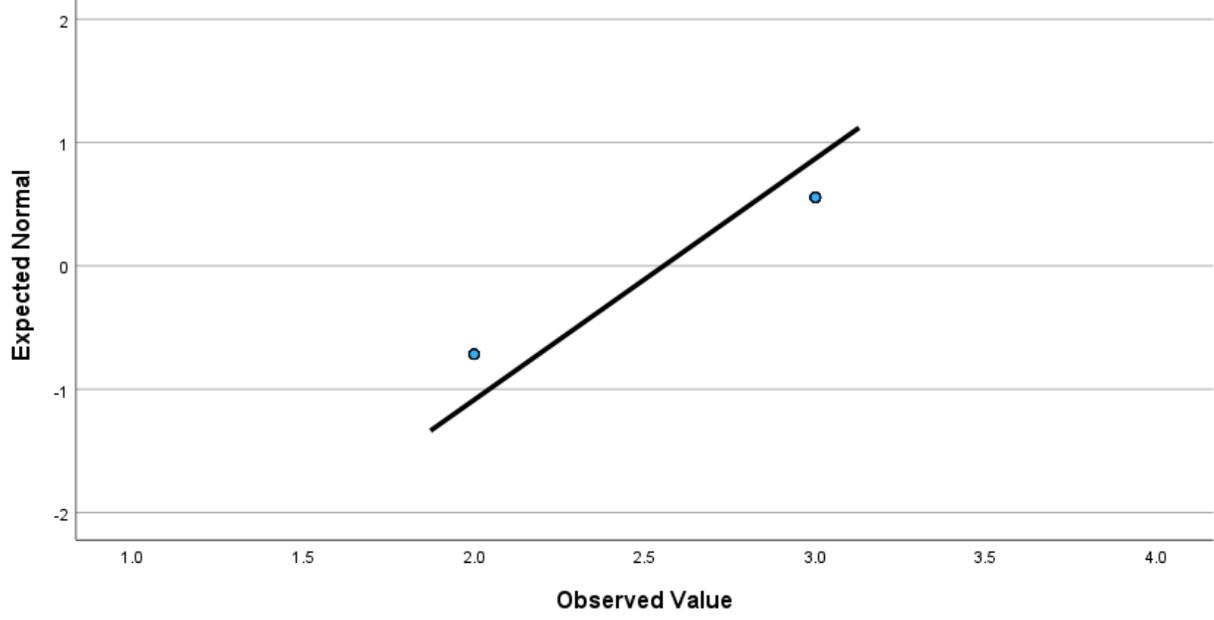
Figure F11

Normal Q-Q Plot of Student IL SKILLS – Evals and Critically About Info for PrimaryTD_4Groups = Other
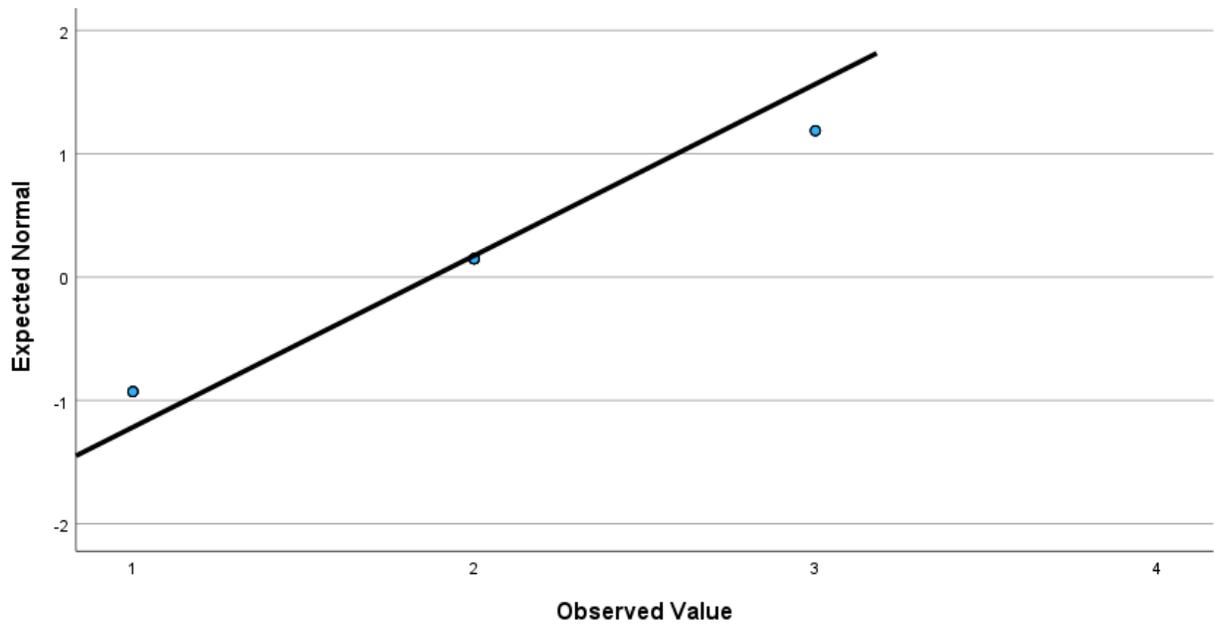
Figure F12

Normal Q-Q Plot of Student IL SKILLS – Evals and Critically About Info for PrimaryTD_4Groups = Math/Science
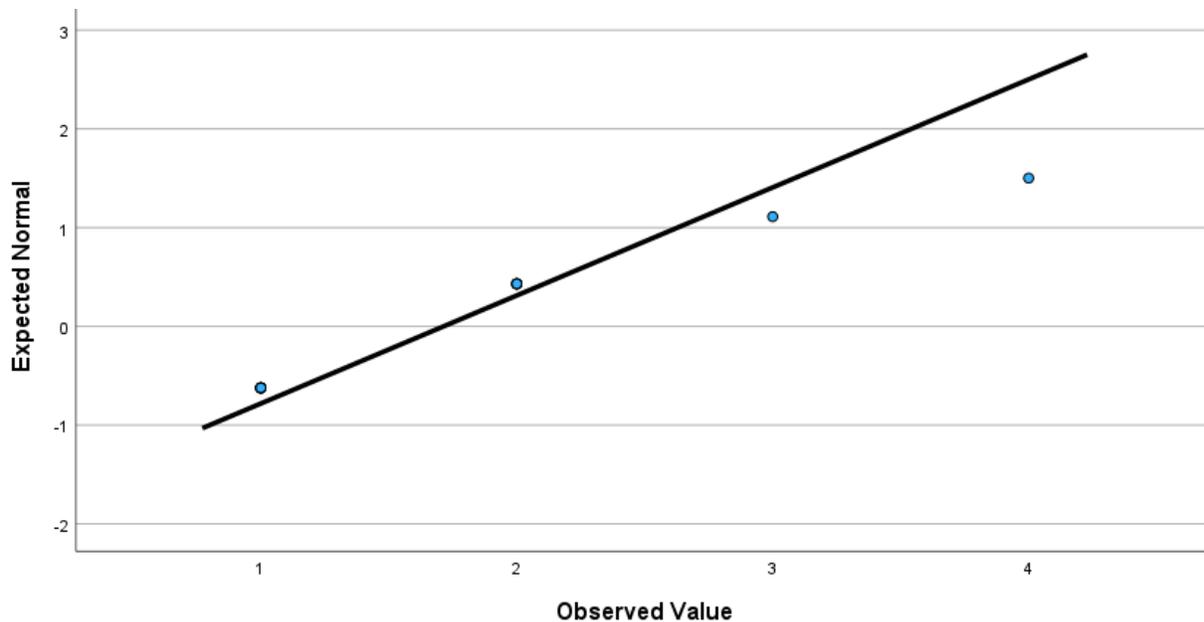
Figure F13

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Specific Purpose for PrimaryTD_4Groups = ELA
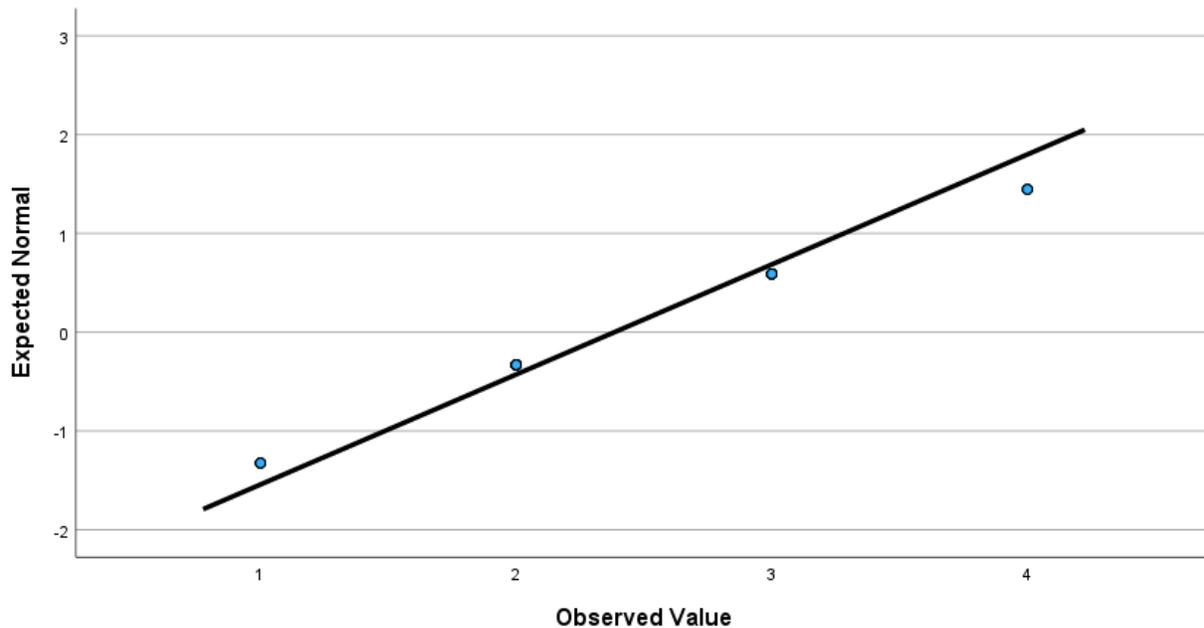
Figure F14

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Specific Purpose for PrimaryTD_4Groups = Humanities
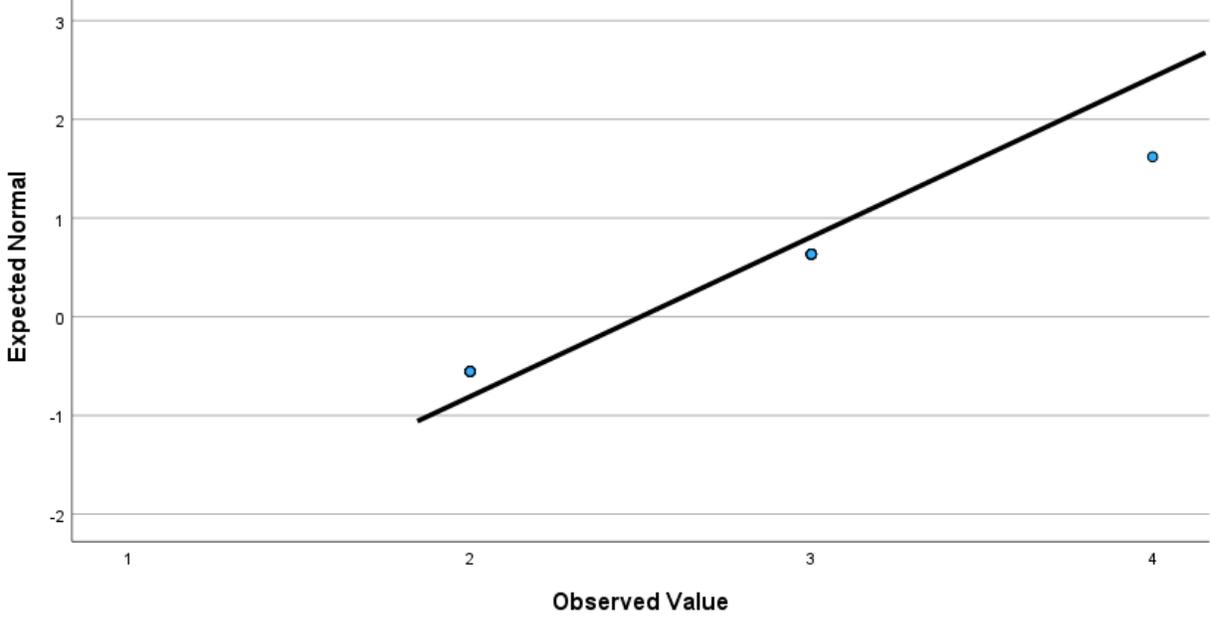
Figure F15

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Specific Purpose for PrimaryTD_4Groups = Math/Science
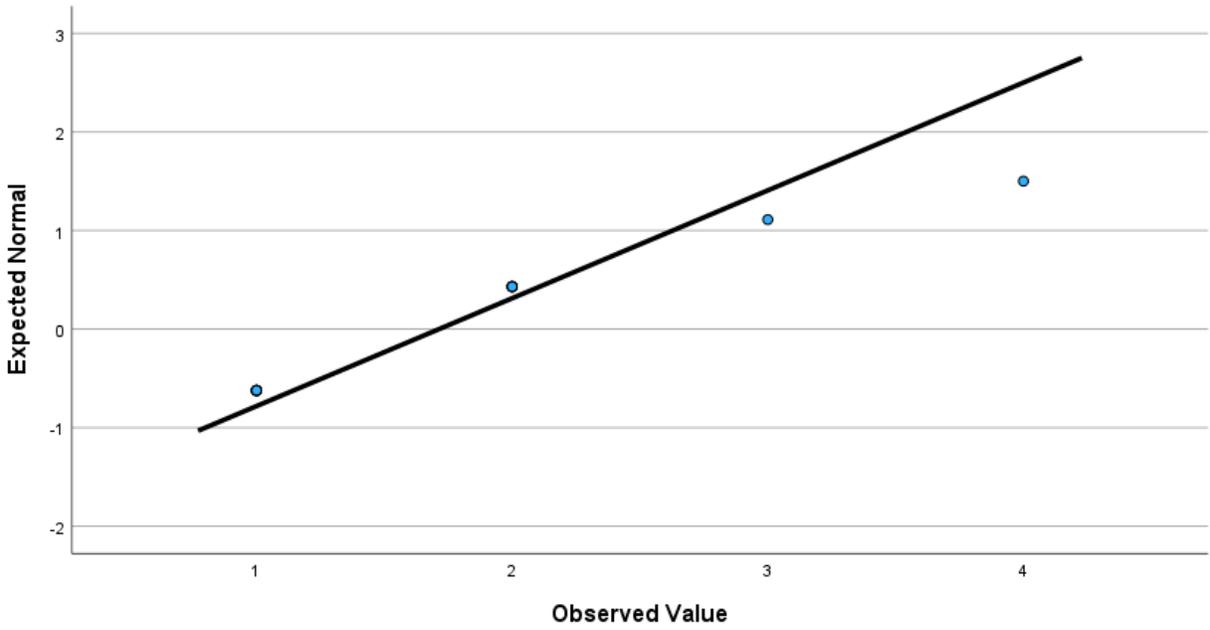
Figure F16

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Specific Purpose for PrimaryTD_4Groups = Other
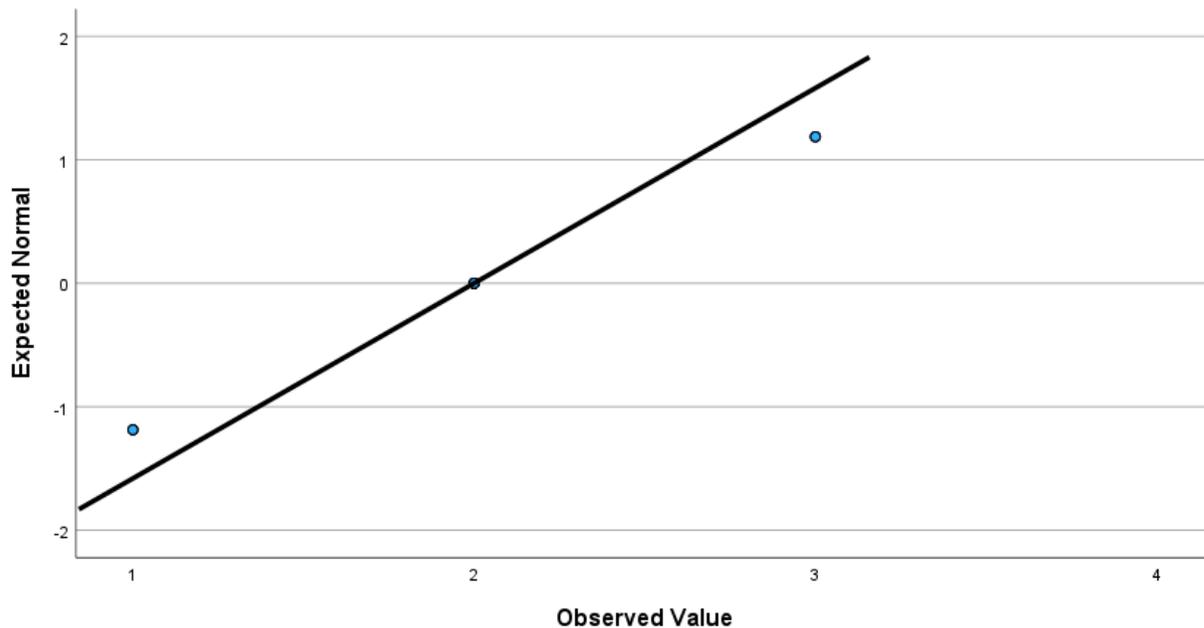
Figure F17

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for PrimaryTD_4Groups = ELA
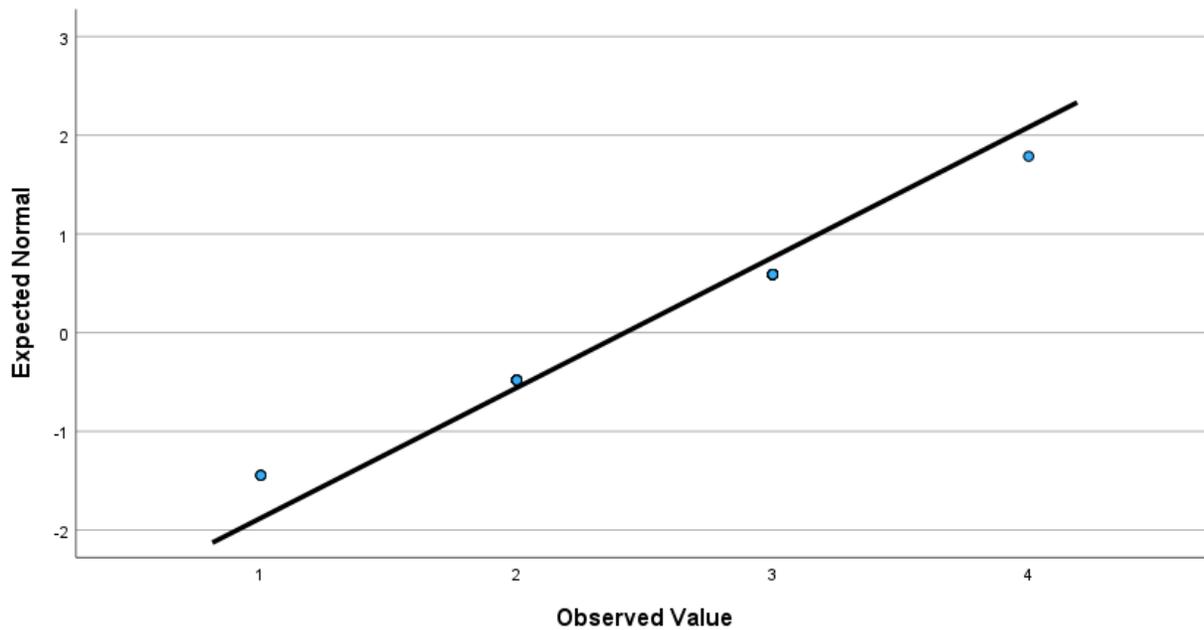
Figure F18

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for PrimaryTD_4Groups = Humanities
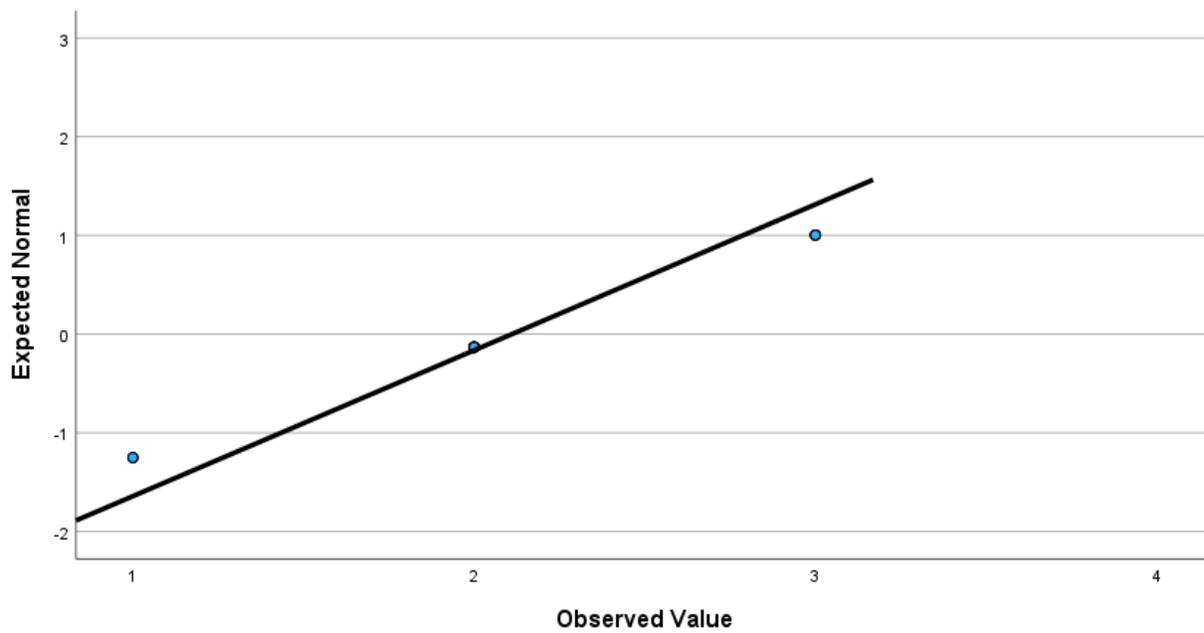
Figure F19

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for PrimaryTD_4Groups = Math/Science
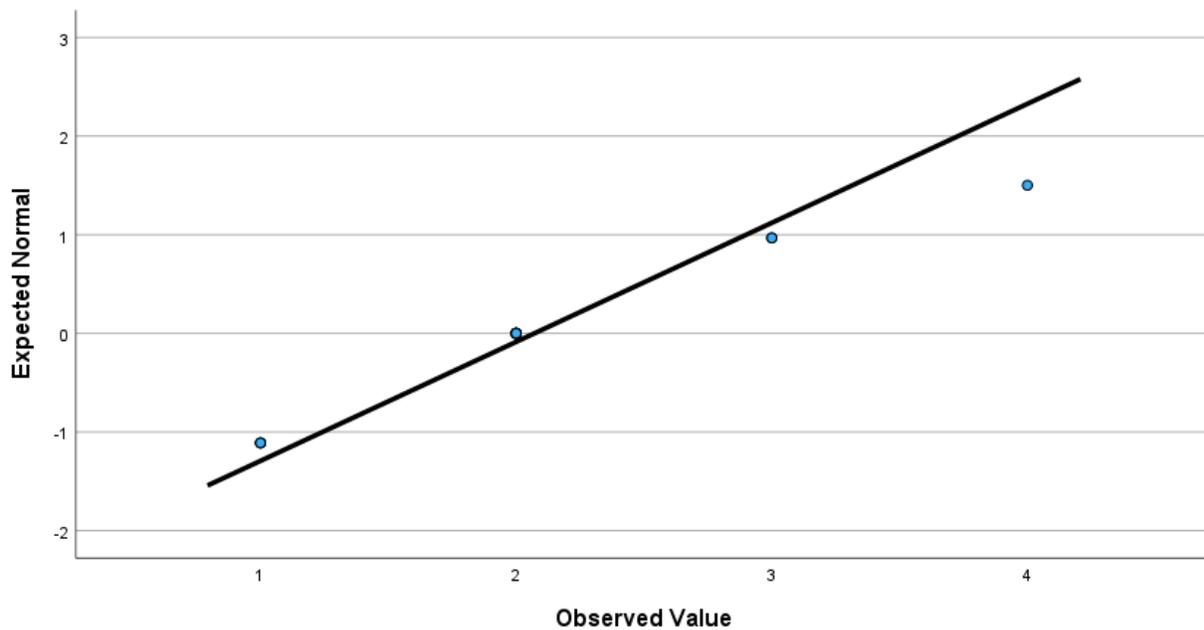
Figure F20

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for PrimaryTD_4Groups = Other
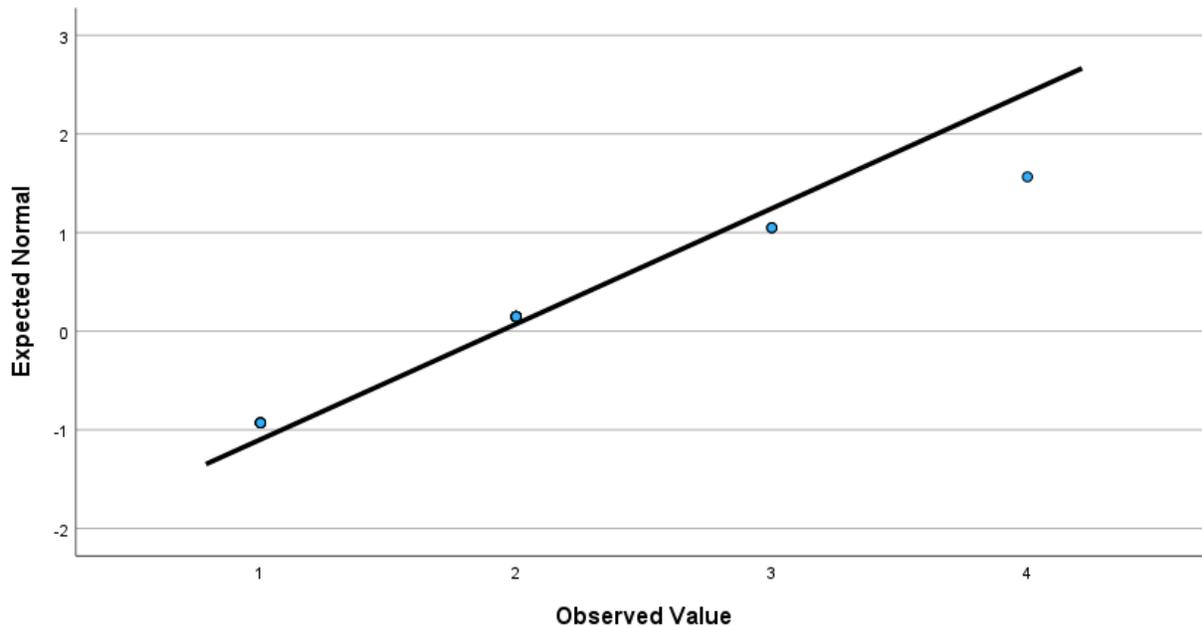
Figure F21

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for DQ3_SchoolClassification = Urban
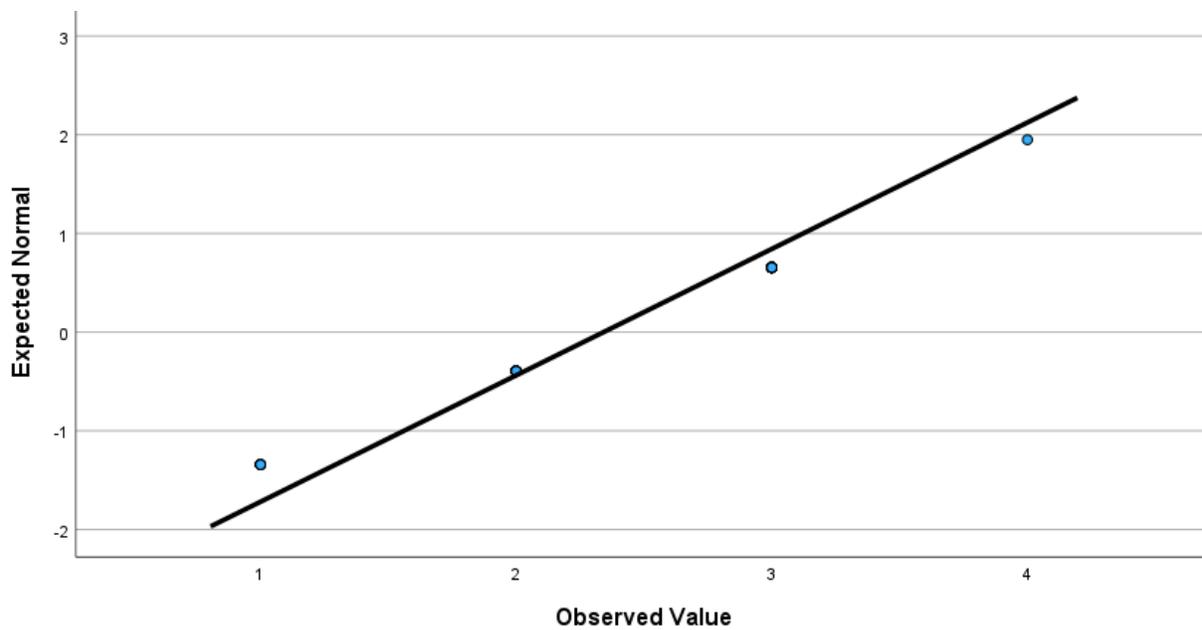
Figure F22

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for DQ3_SchoolClassification = Rural
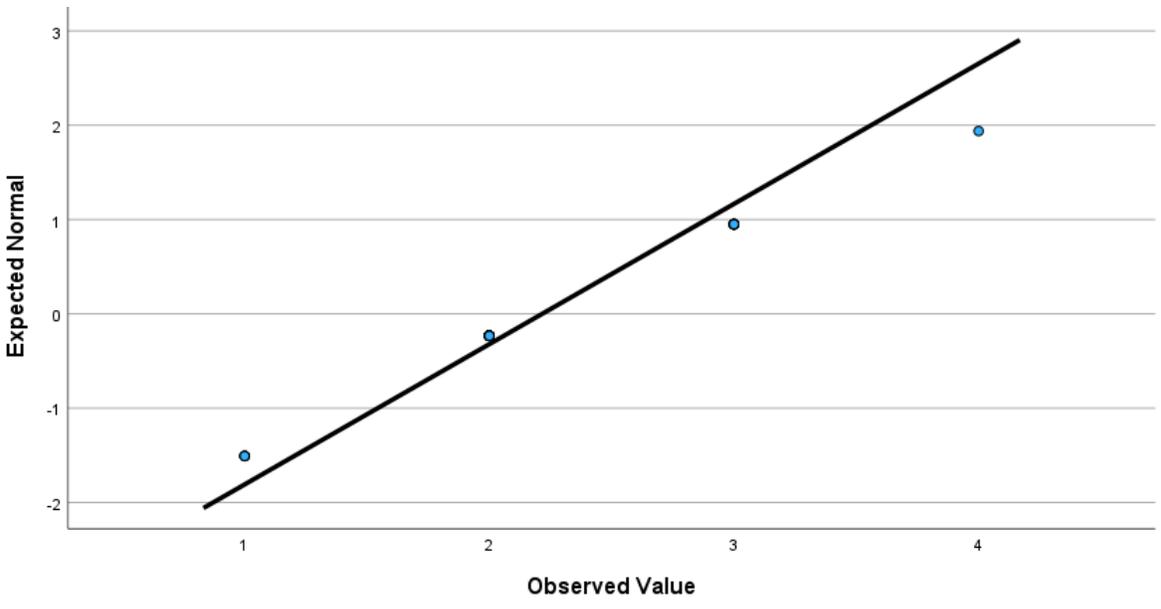
Figure F23

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for DQ3_SchoolClassification = Urban
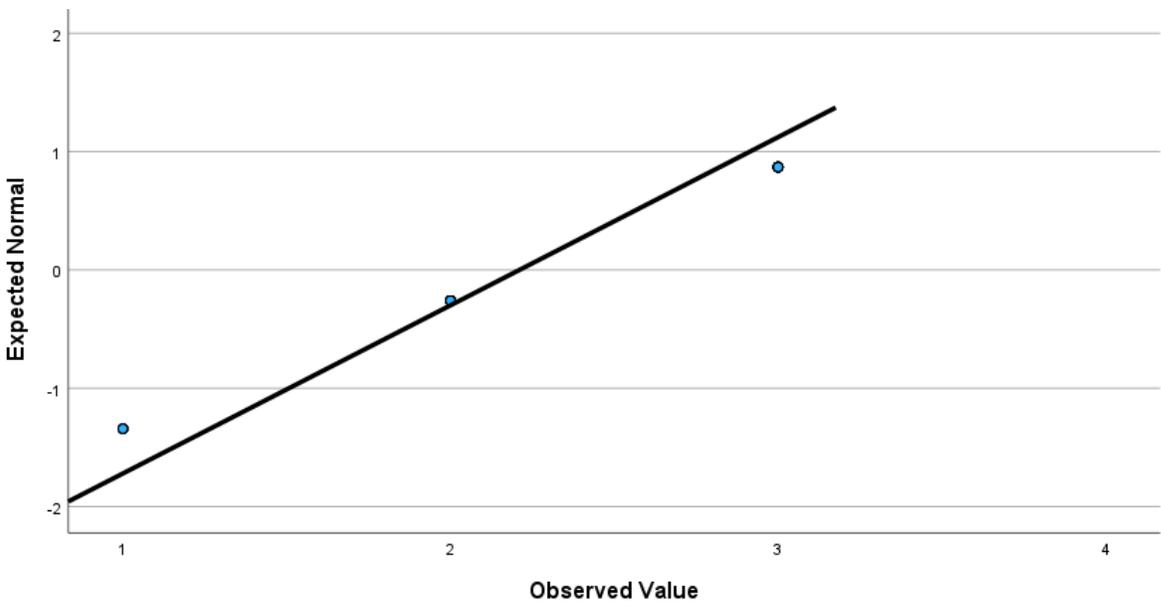
Figure F24

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for DQ3_SchoolClassification = Rural
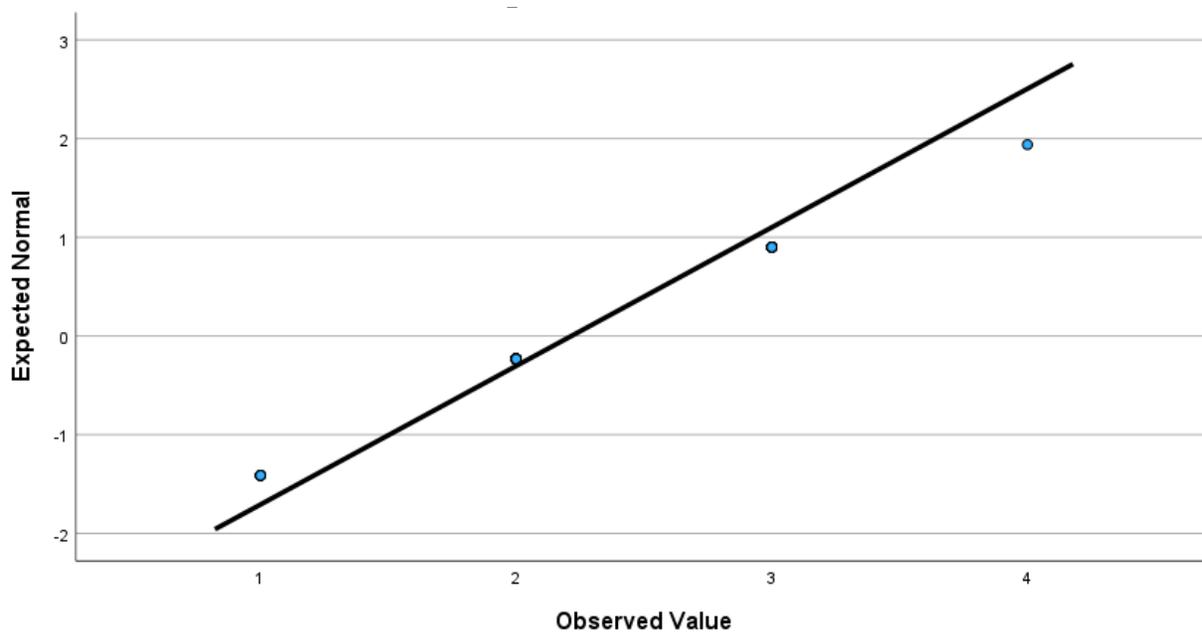
Figure F25

Normal Q-Q Plot of Student IL SKILLS – Evals and Thinks Critically About Info for DQ3_SchoolClassification = Urban
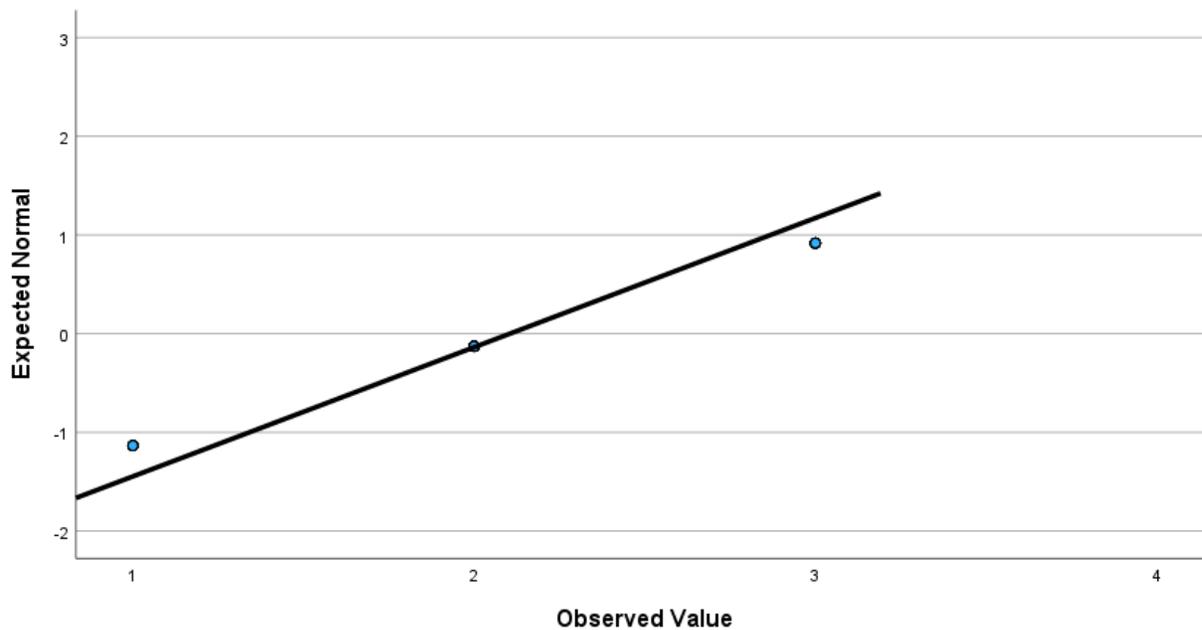
Figure F26

Normal Q-Q Plot of Student IL SKILLS – Evals and Thinks Critically About Info for DQ3_SchoolClassification = Rura
l
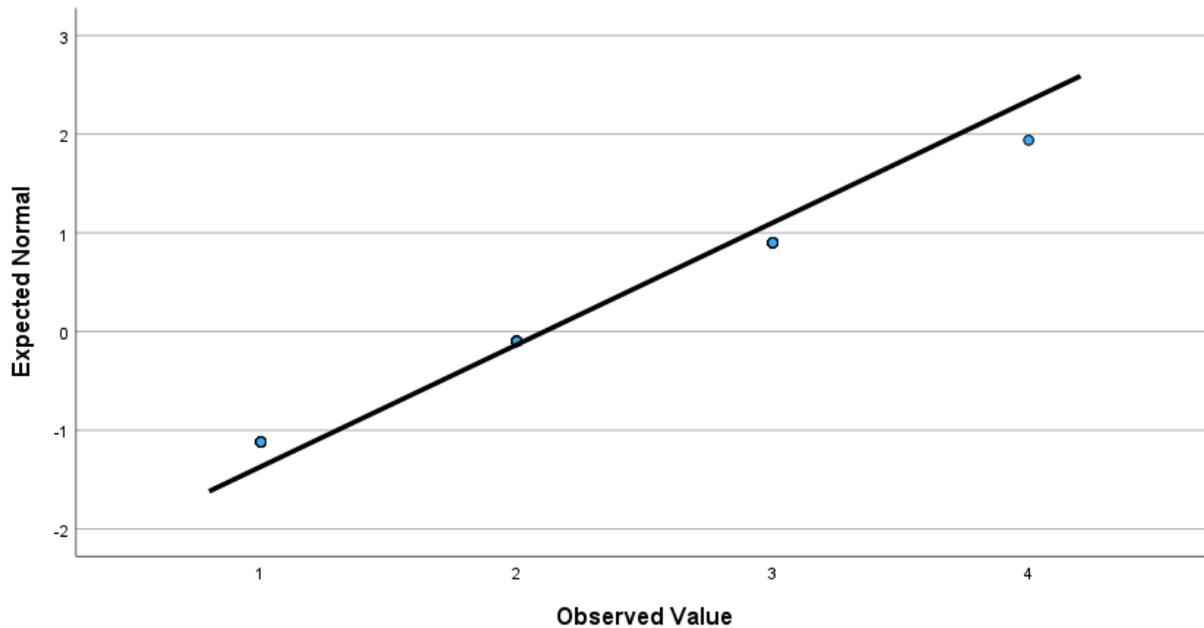
Figure F27

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for DQ3_SchoolClassification = Urban
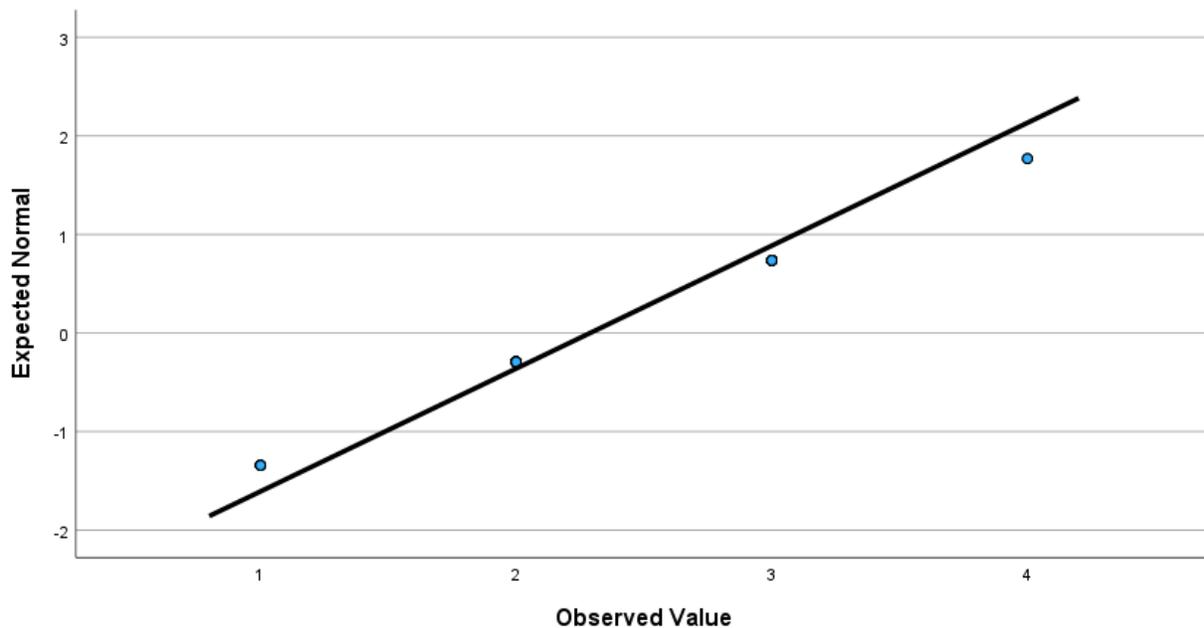
Figure F28

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for DQ3_SchoolClassification = Rural
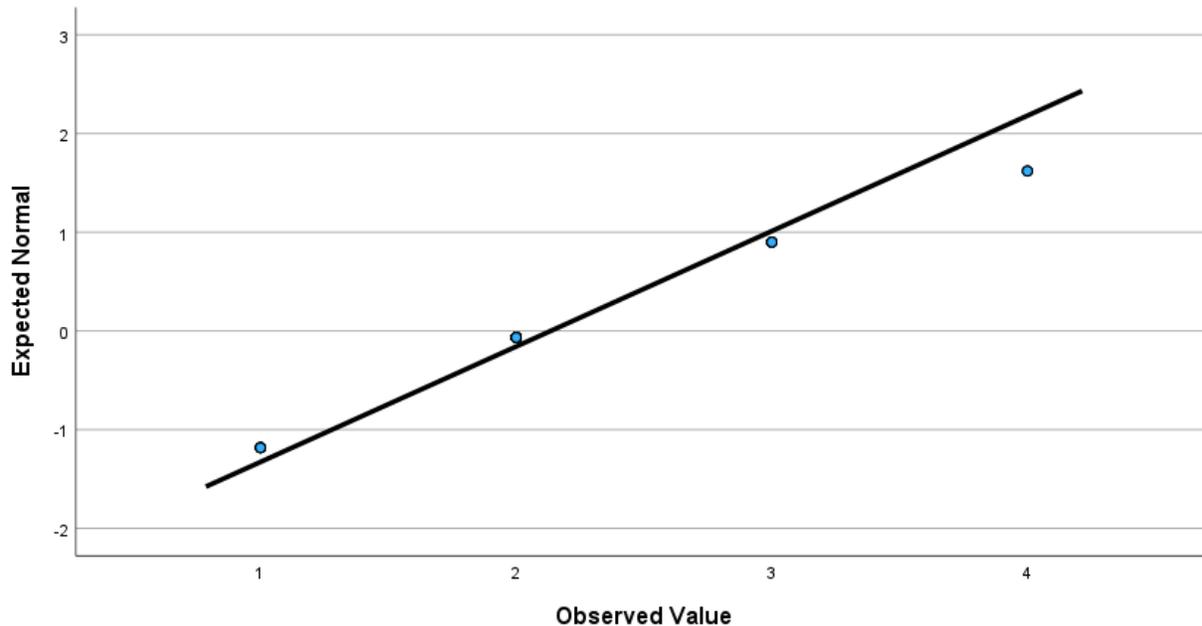
Figure F29

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for DQ3_SchoolClassification = Urban
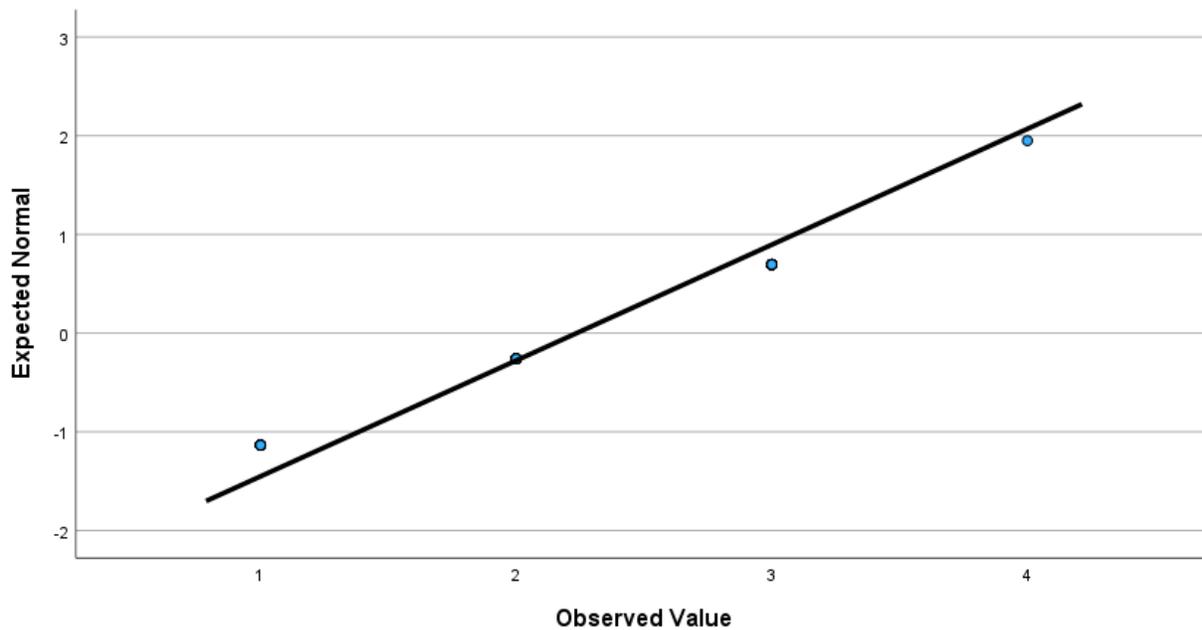
Figure F30

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for DQ3_SchoolClassification = Rural
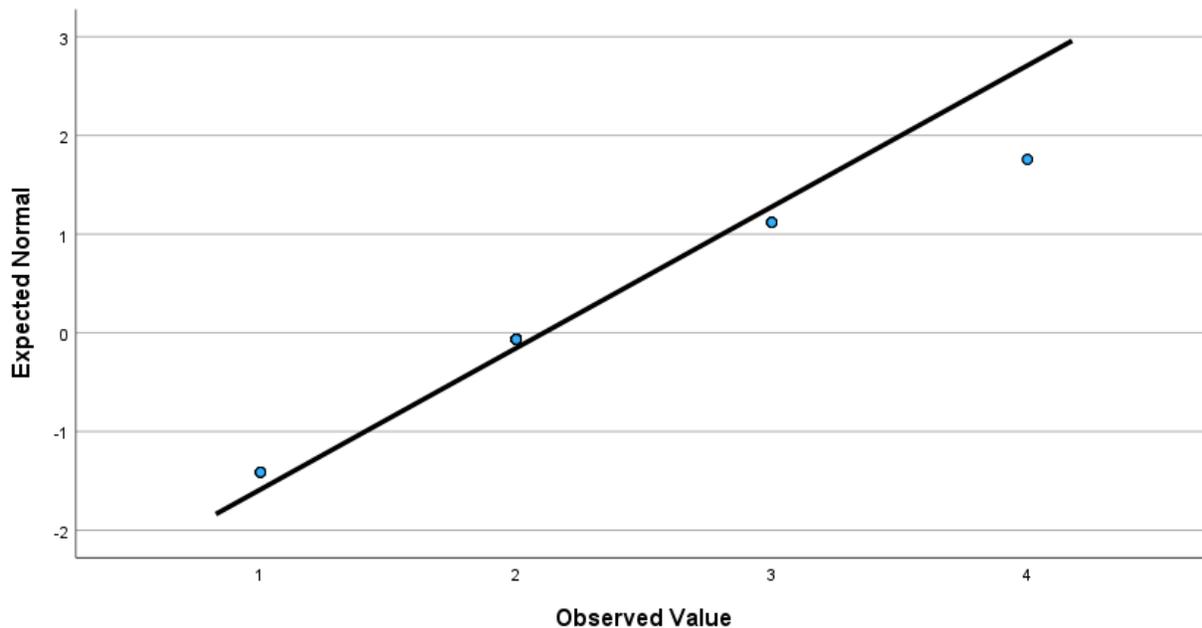
Figure F31

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for DQ4_SchoolSize = Small (500 or fewer)
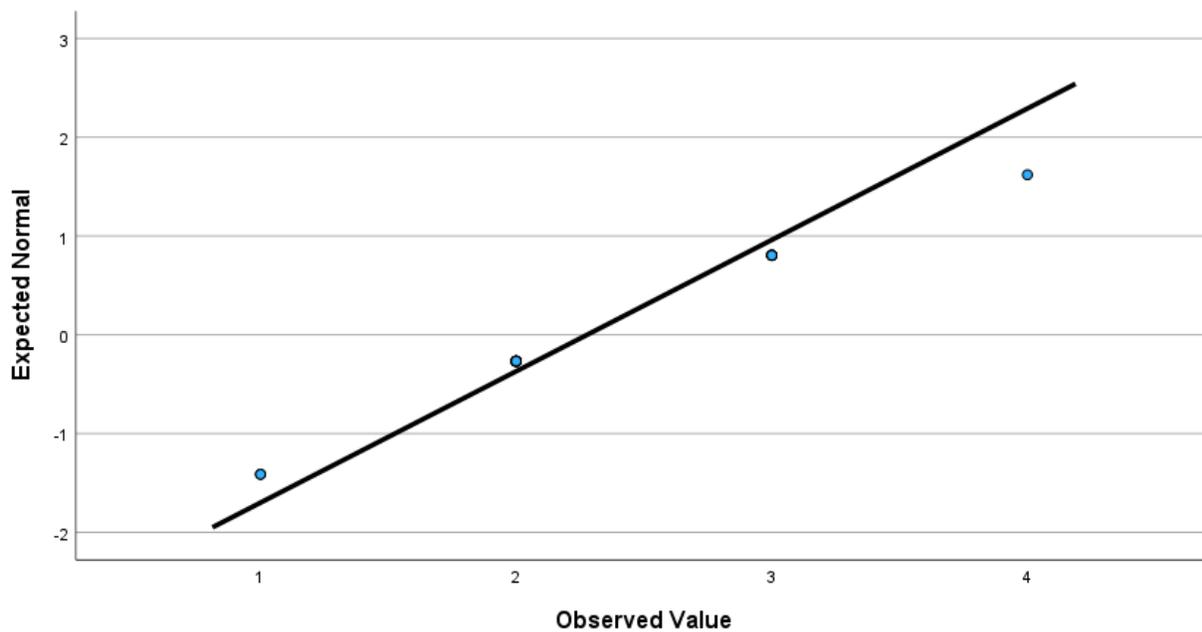
Figure F32

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for DQ4_SchoolSize = Medium (500 – 1,000)
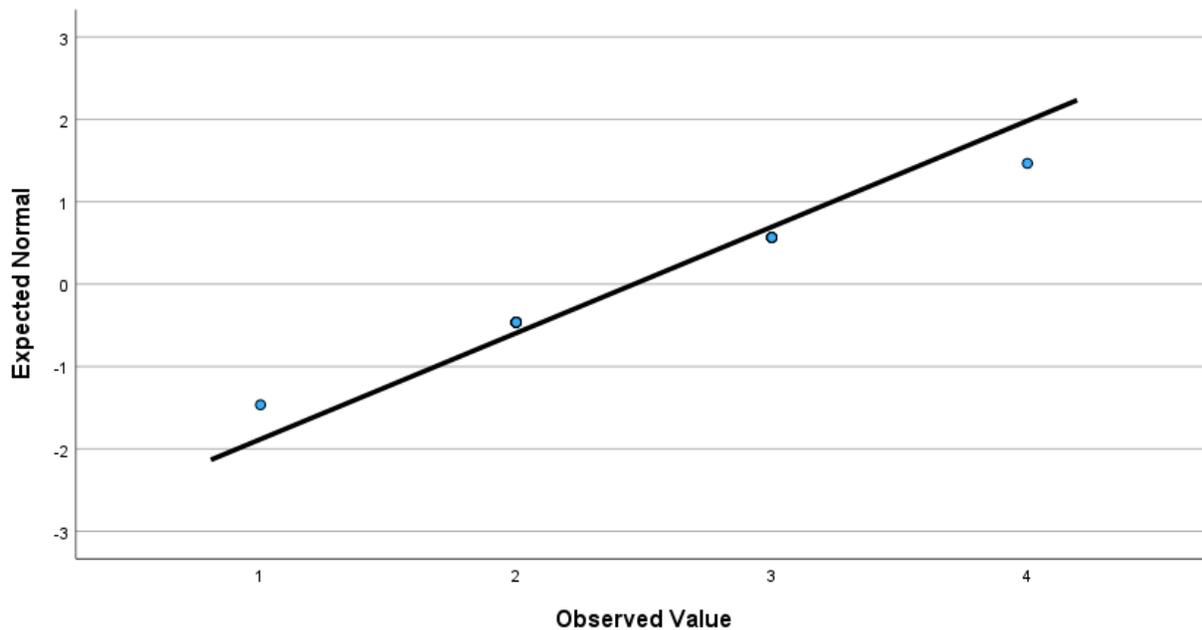
Figure F33

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for DQ4_SchoolSize = Large (Over 1,000)
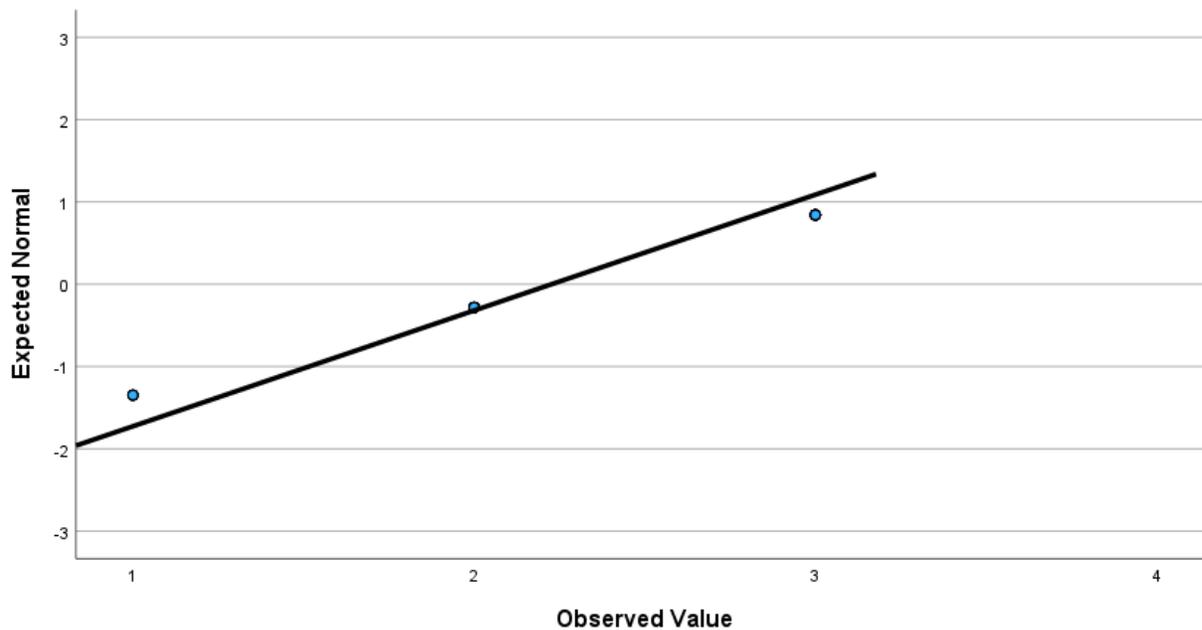
Figure F34

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for DQ4_SchoolSize = Small (500 or fewer)
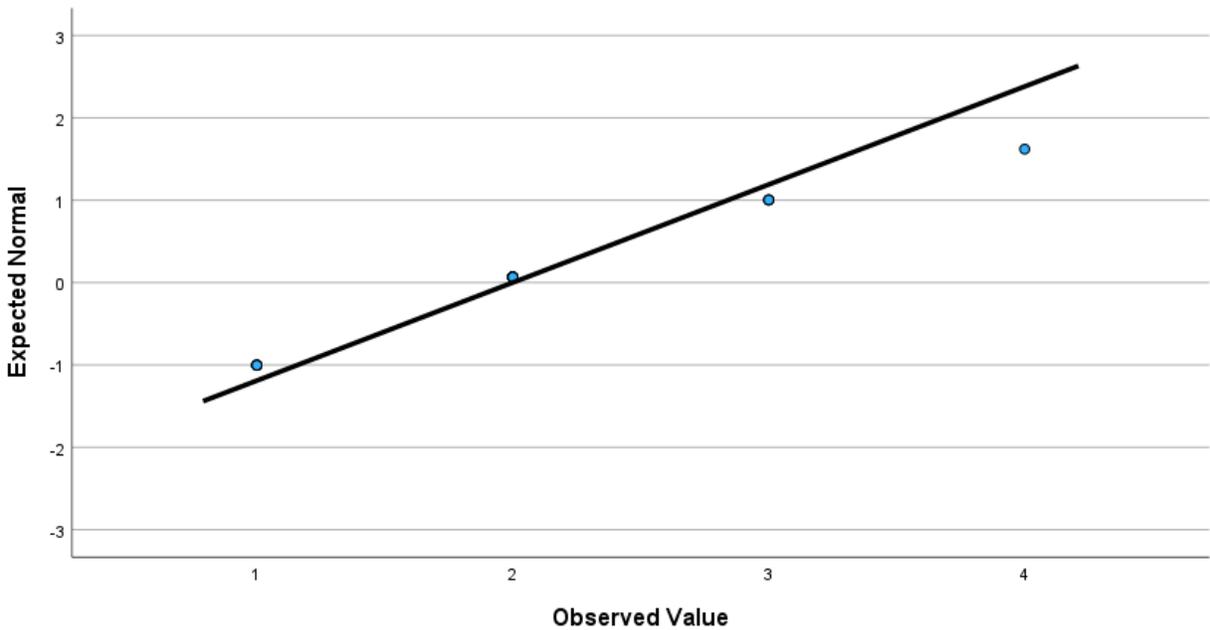
Figure F35

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for DQ4_SchoolSize = Medium (500 – 1,000)
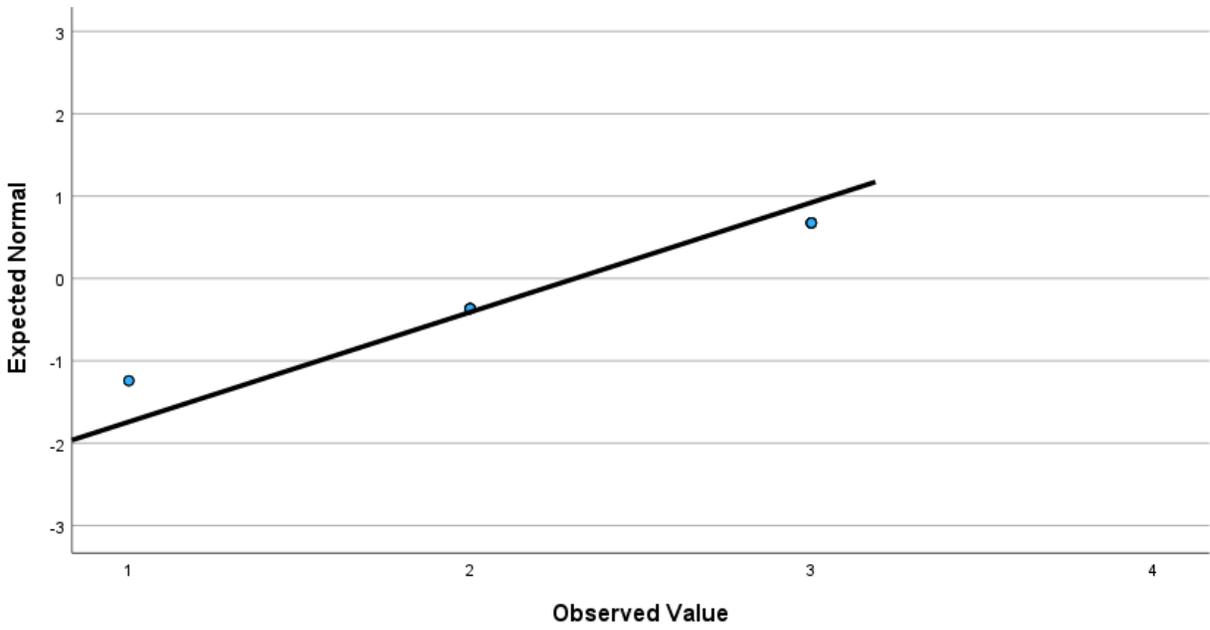
Figure F36

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for DQ4_SchoolSize = Large (Over 1,000)
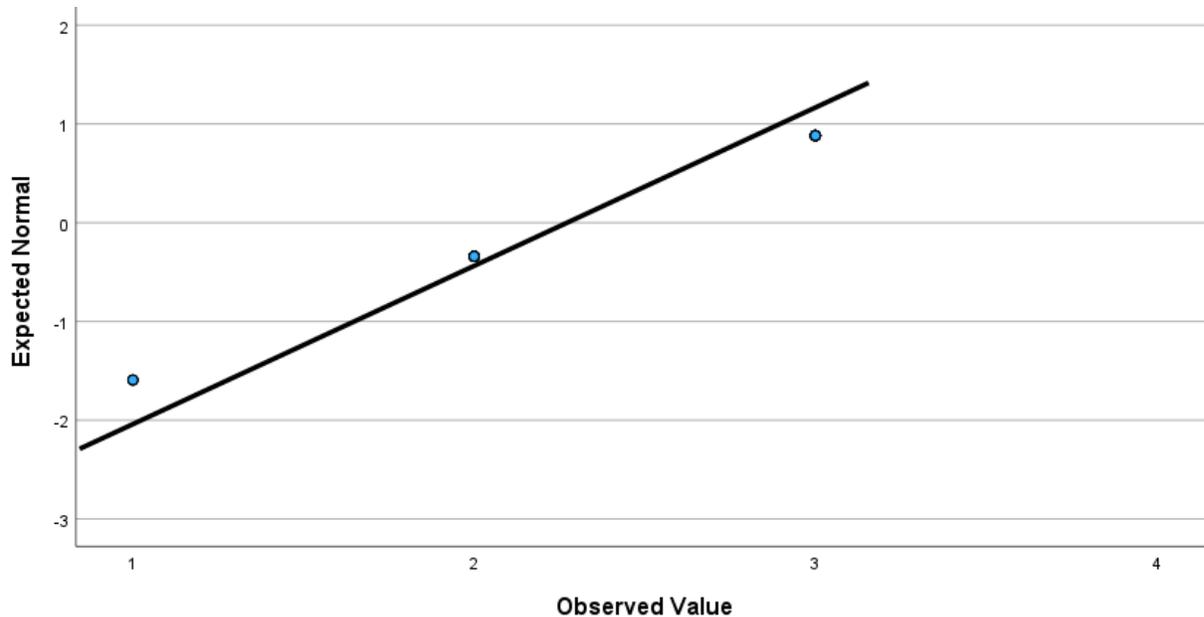
Figure F37

Normal Q-Q Plot of Student IL SKILLS – Evals and Thinks Critically About Info for DQ4_SchoolSize = Small (500 or fewer)
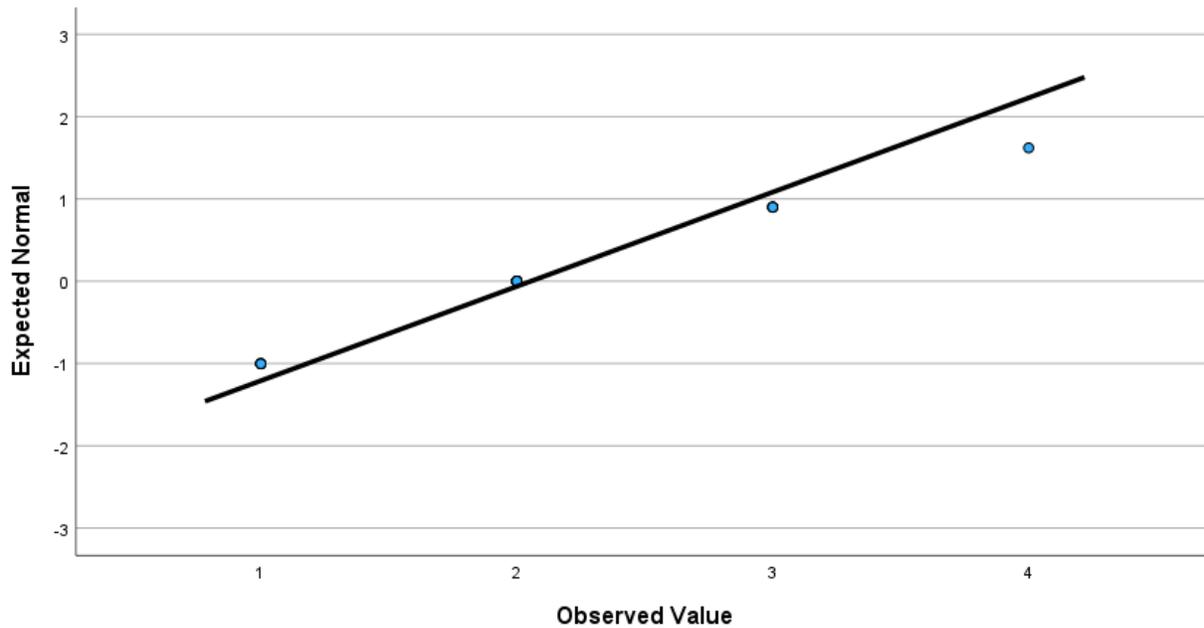
Figure F38

Normal Q-Q Plot of Student IL SKILLS – Evals and Thinks Critically About Info for DQ4_SchoolSize = Meridian (500 – 1,000)
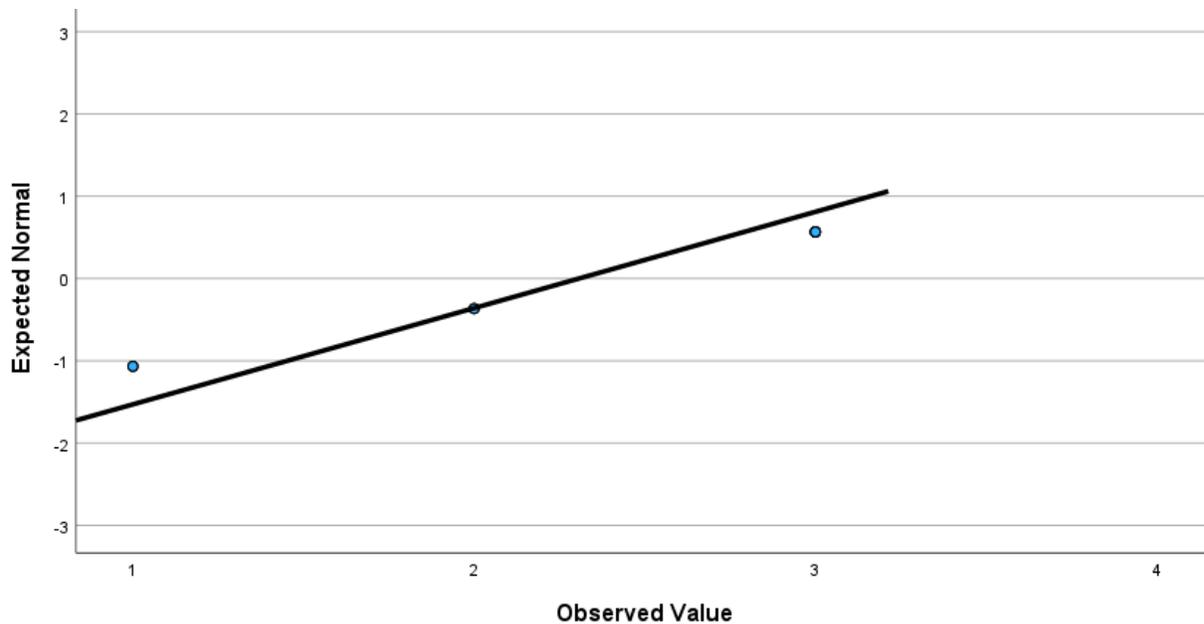
Figure F39

Normal Q-Q Plot of Student IL SKILLS – Evals and Thinks Critically About Info for DQ4_SchoolSize = Large (Over 1,000)
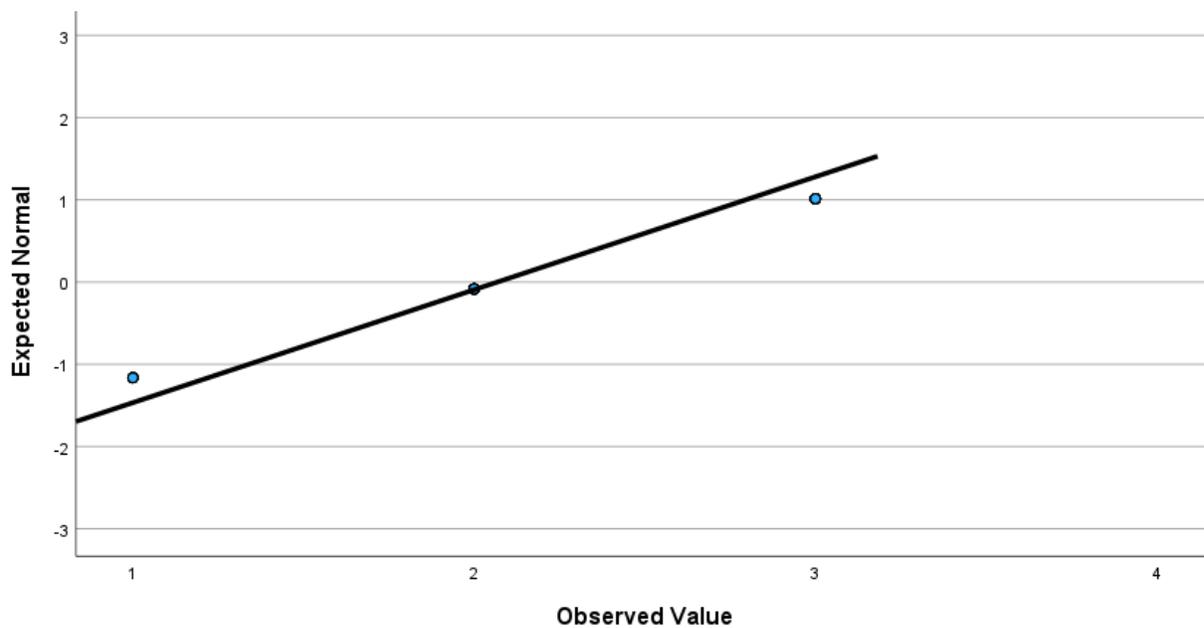
Figure F40

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for DQ4_SchoolSize = Small (500 or fewer)
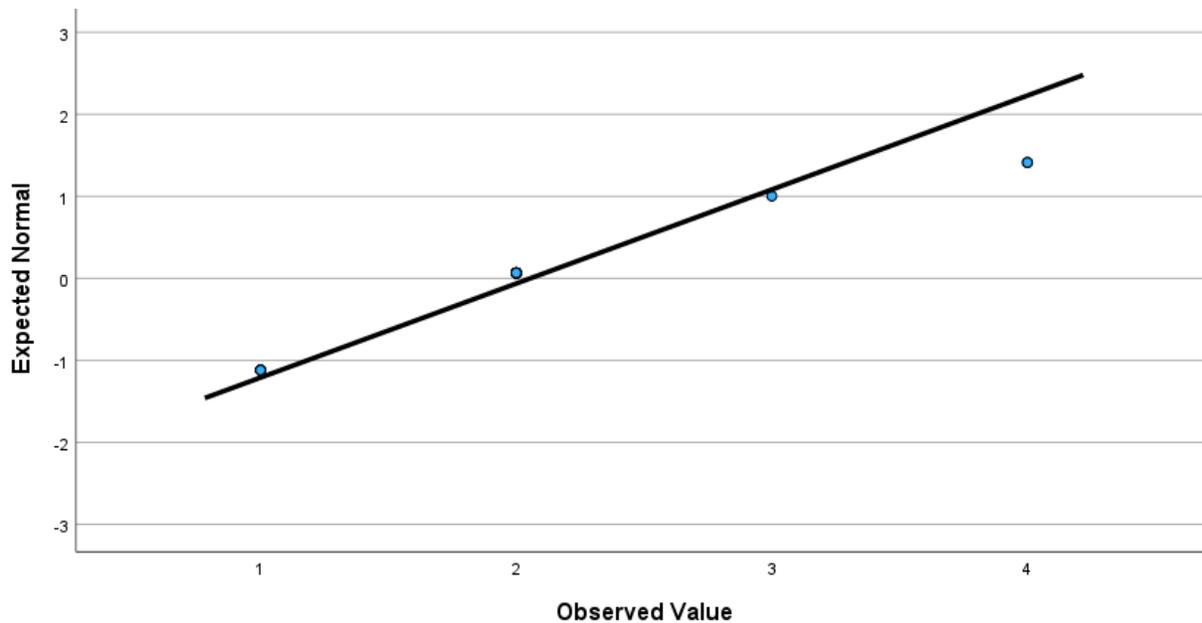
Figure F41

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for DQ4_SchoolSize = Medium (500 – 1,000)
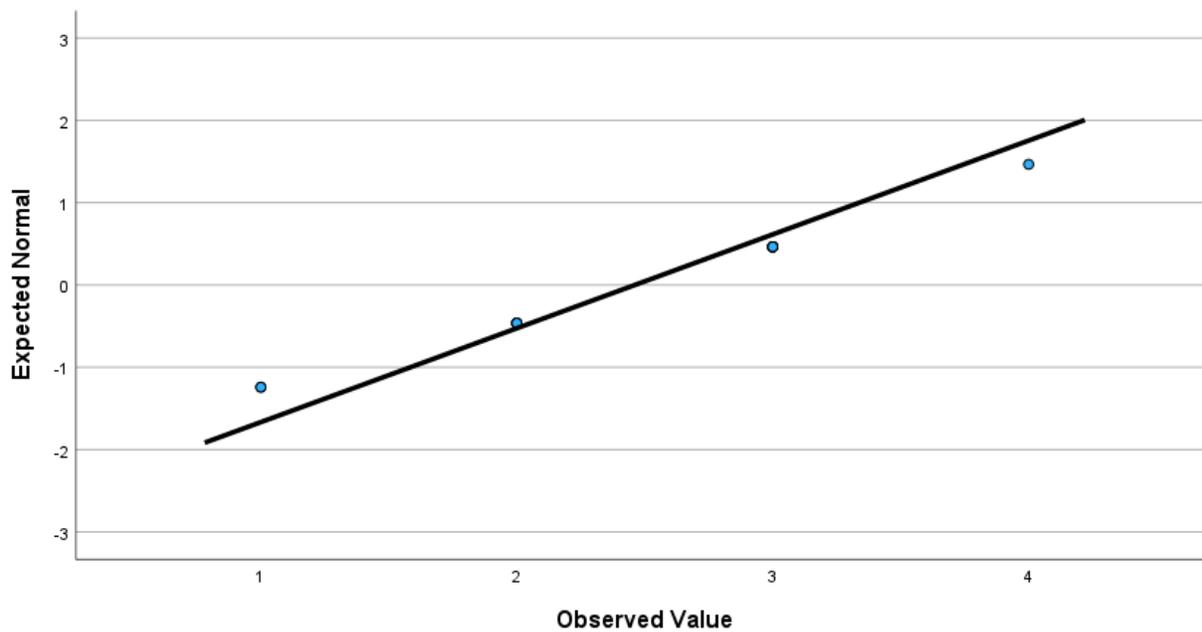
Figure F42

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for DQ4_SchoolSize = Large (Over 1,000)
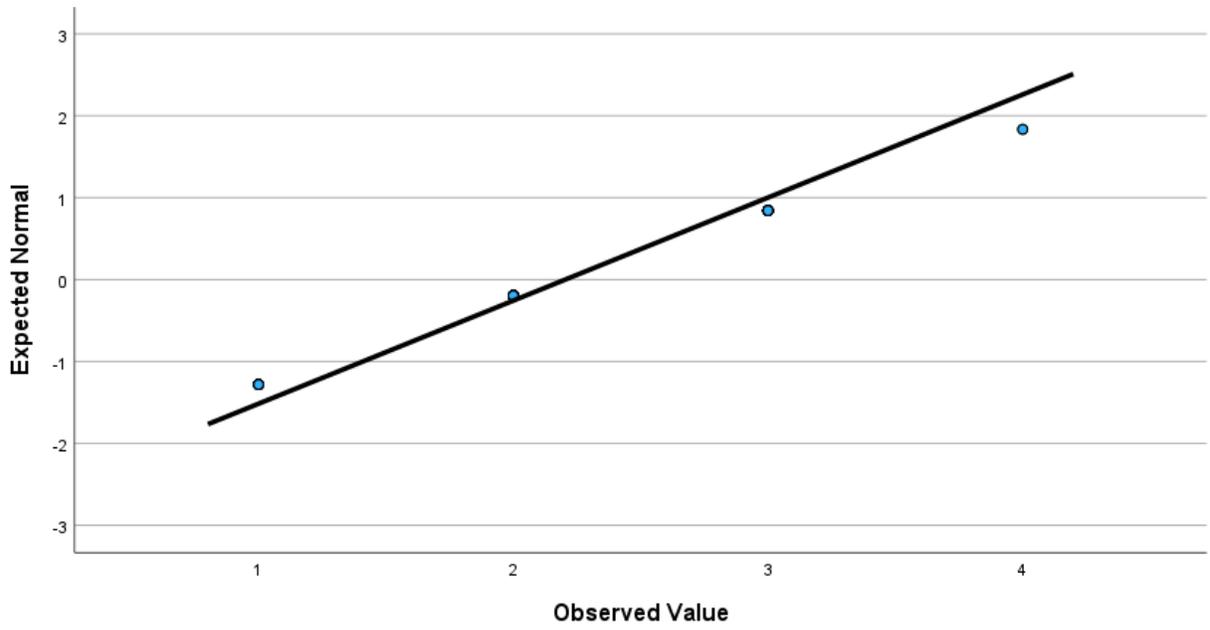
Figure F43

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for DQ4_SchoolSize = Small (500 or fewer)
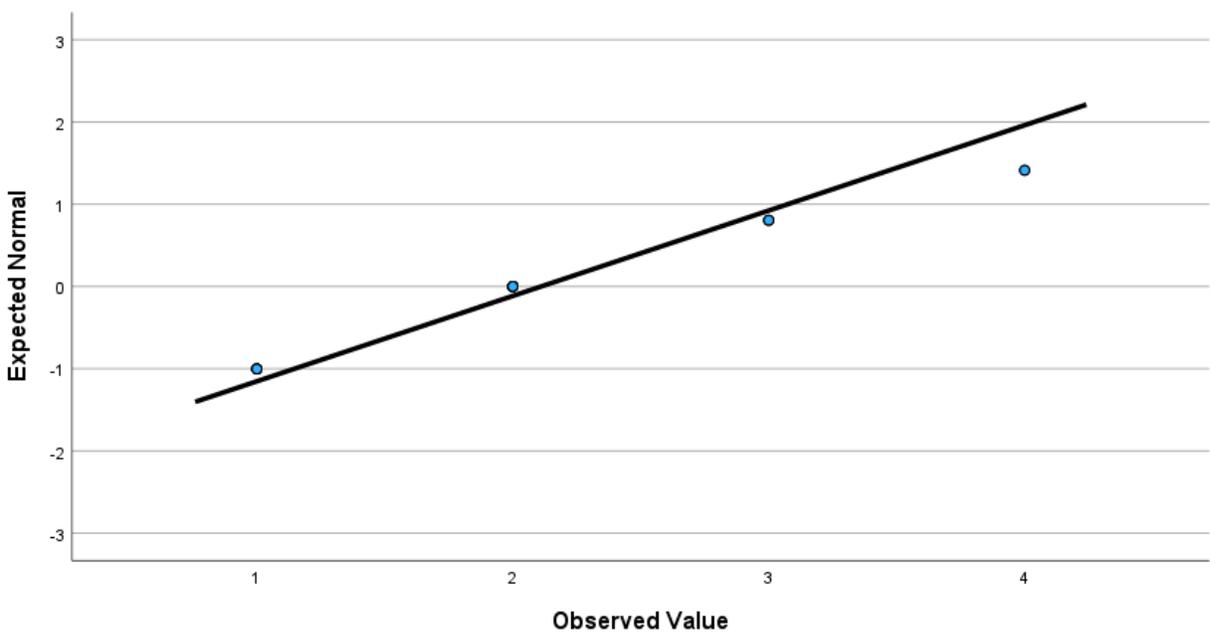
Figure F44

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for DQ4_SchoolSize = Medium (500 – 1,000)
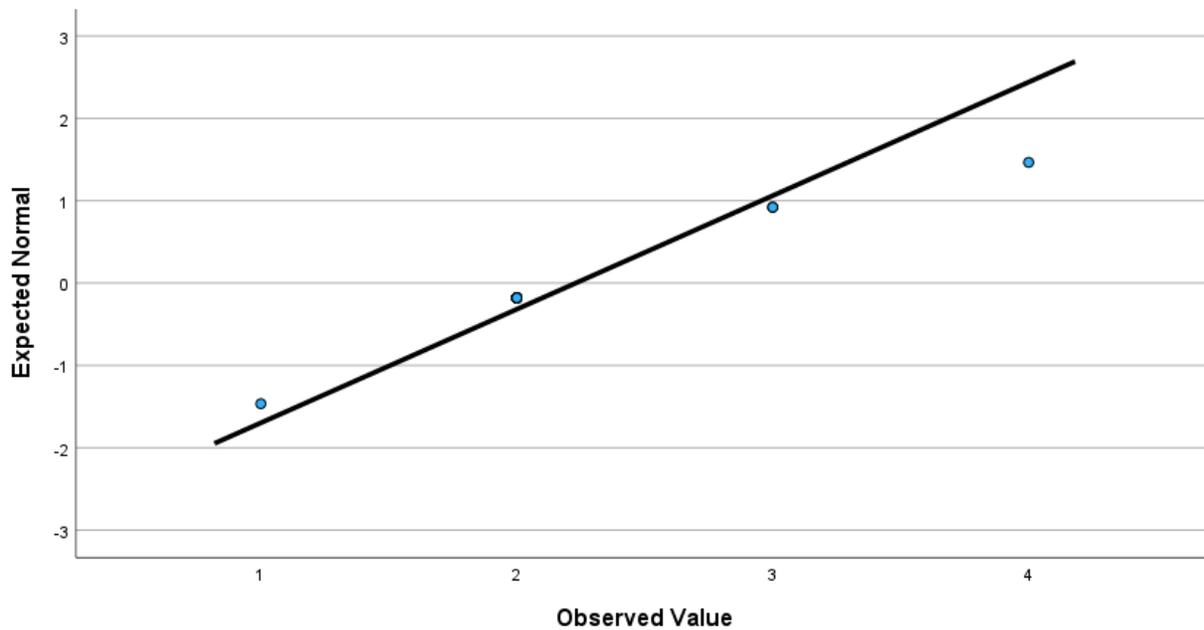
Figure F45

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for DQ4_SchoolSize = Large (Over 1,000)
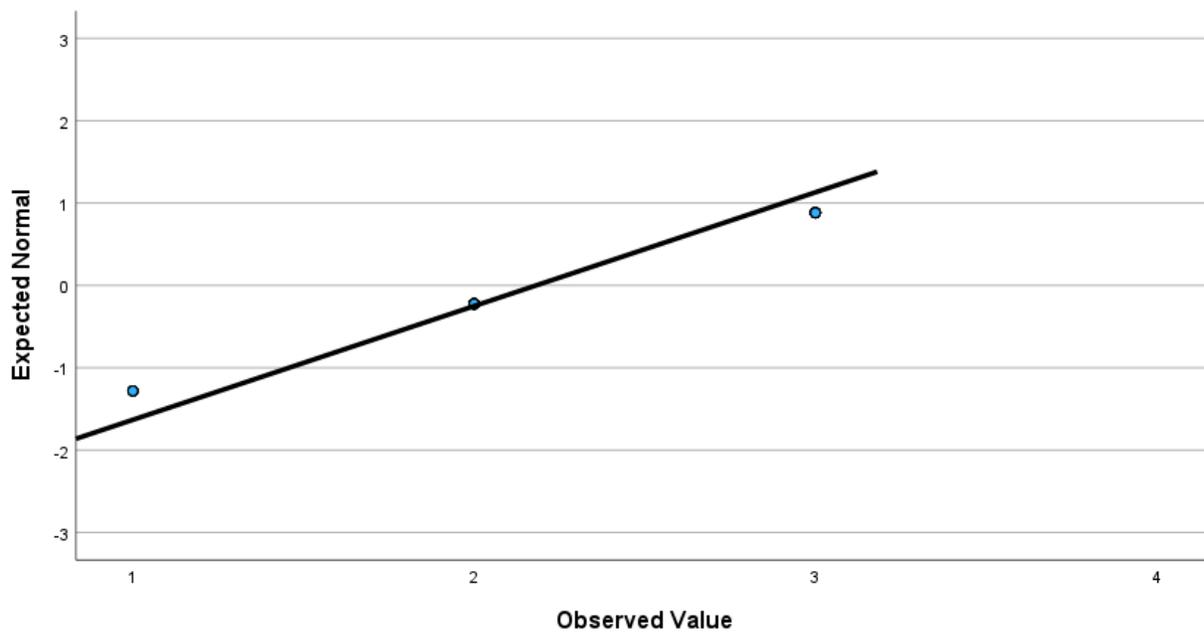
Figure F46

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for LibrarianCert = Not Certified
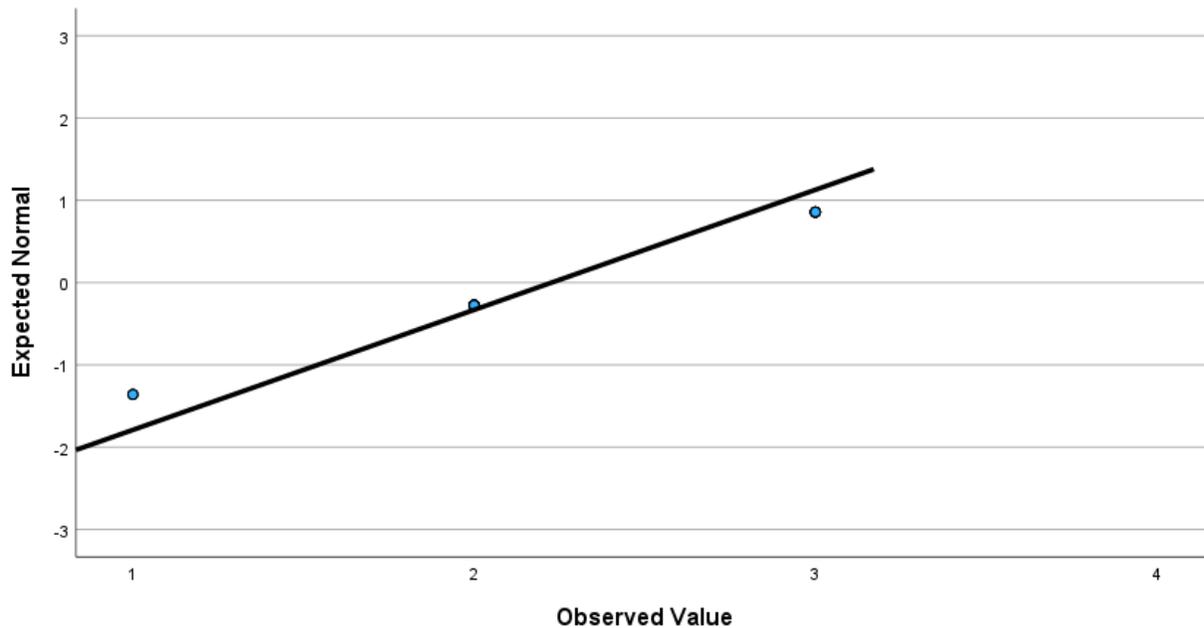
Figure F47

Normal Q-Q Plot of Student IL SKILLS – IDs and Addresses Info Need for LibrarianCert = Certified
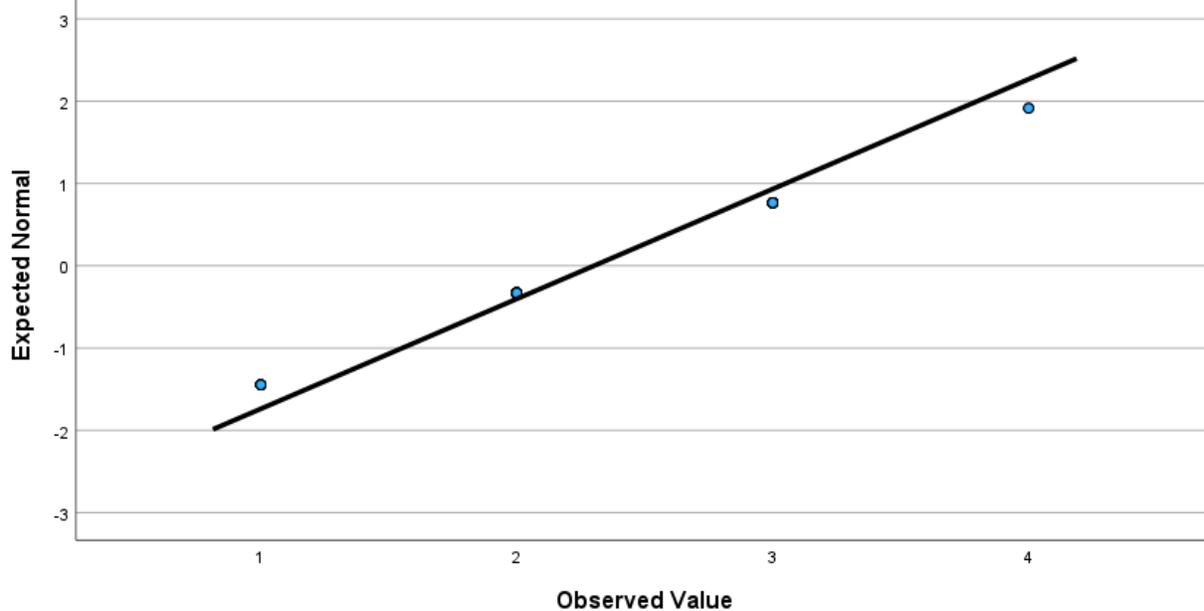
Figure F48

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for LibrarianCert = Not Certified
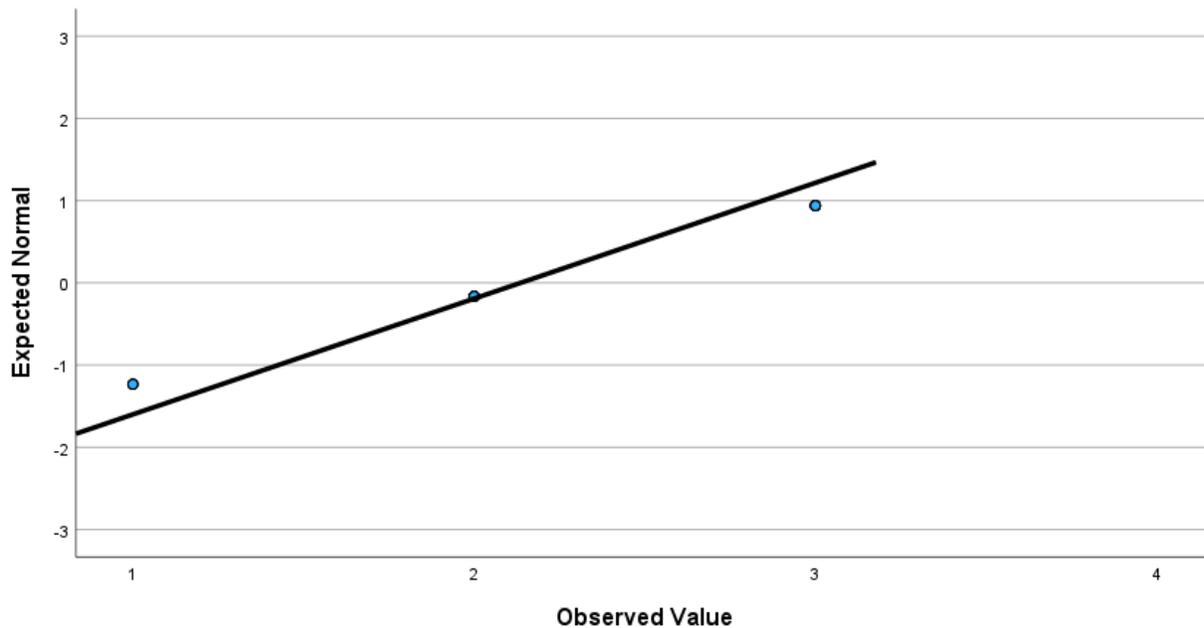
Figure F49

Normal Q-Q Plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for LibrarianCert = Certified
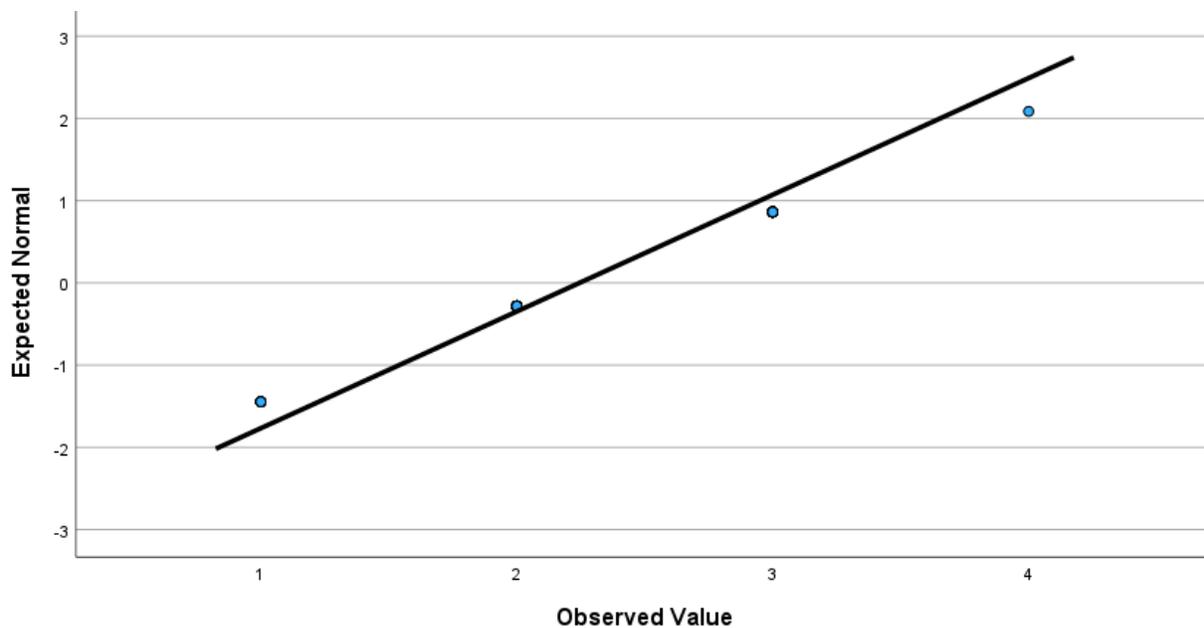
Figure F50

*Normal Q-Q Plot of Student IL SKILLS – Evals and Thinks Critically About Info for LibrarianCert = Not Certified*
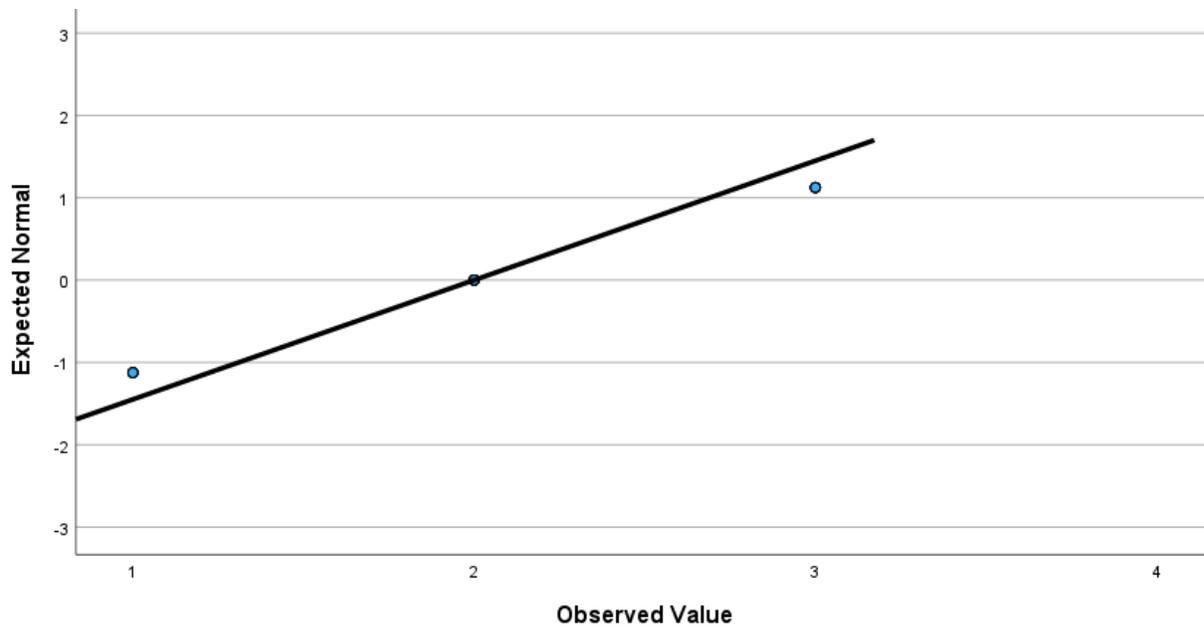
Figure F51

Normal Q-Q Plot of Student IL SKILLS – Evals and Thinks Critically About Info for LibrarianCert = Certified
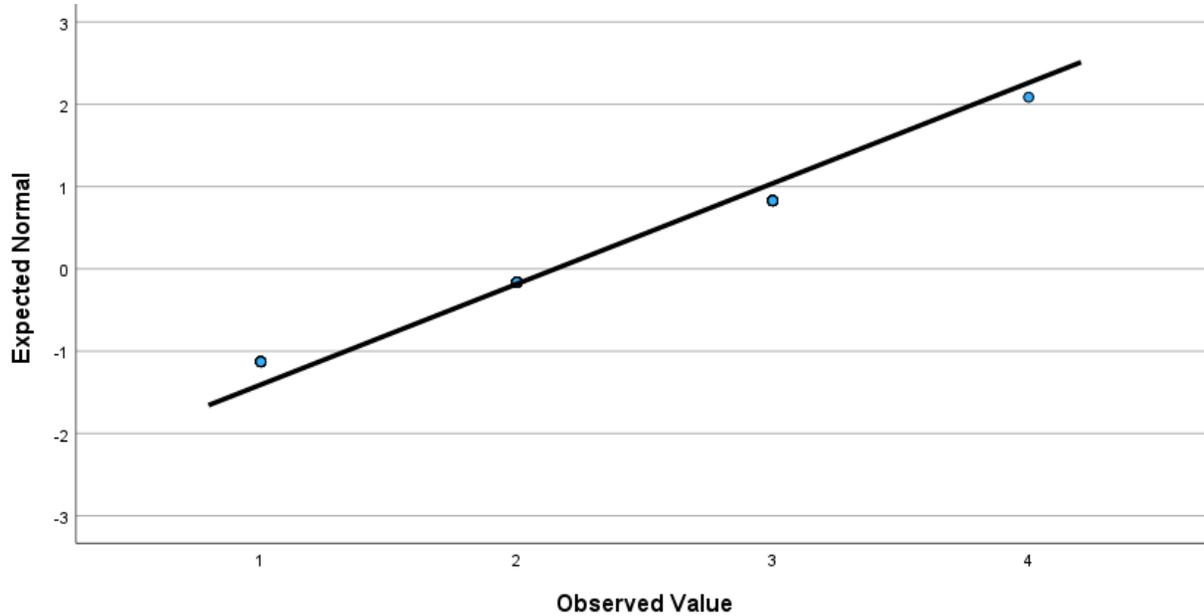
Figure F52

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for LibrarianCert = Not Certified
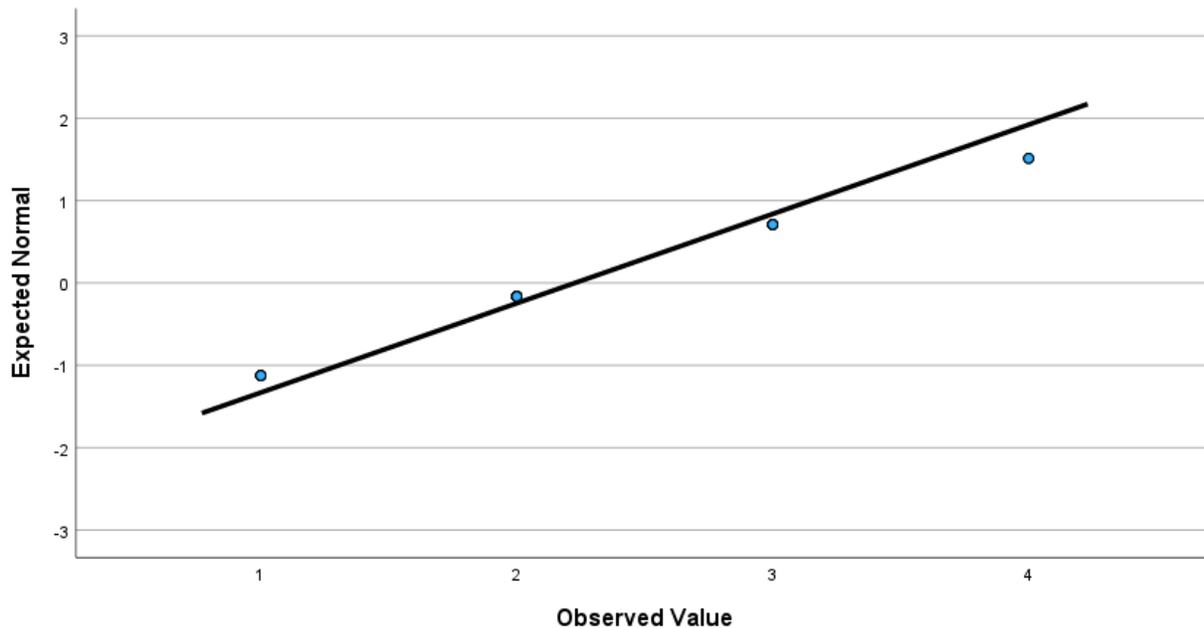
Figure F53

Normal Q-Q Plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for LibrarianCert = Certified
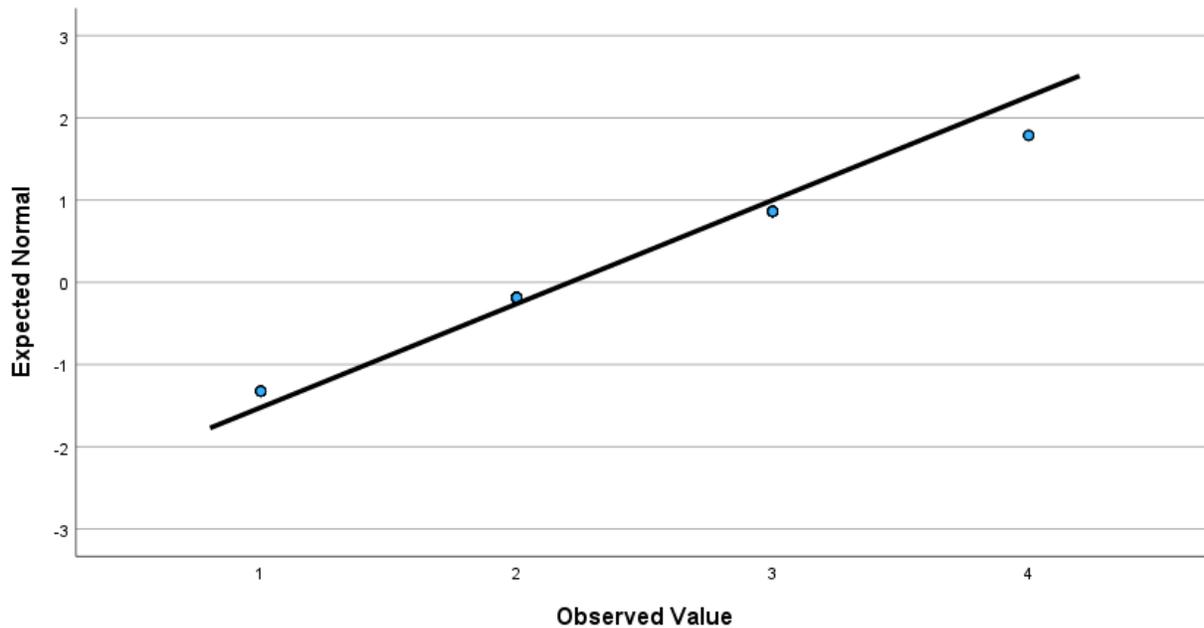
Figure F54

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for LibrarianCert = Not Certified
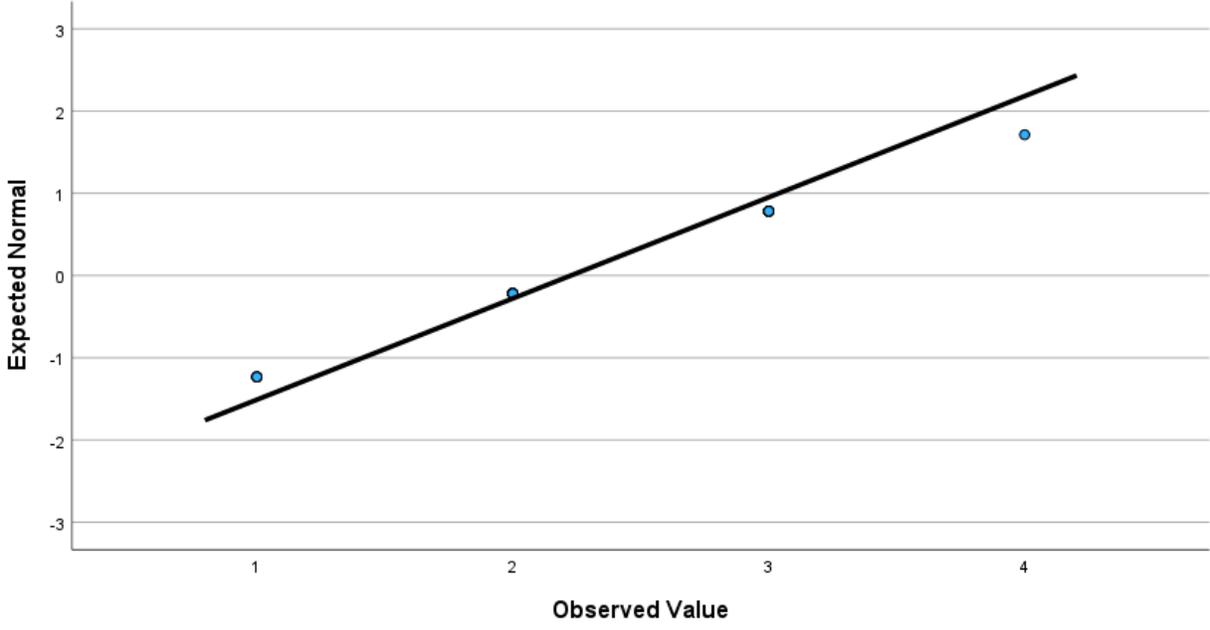
Figure F55

Normal Q-Q Plot of Student IL SKILLS – Uses Info Ethically & Legally for LibrarianCert = Certified
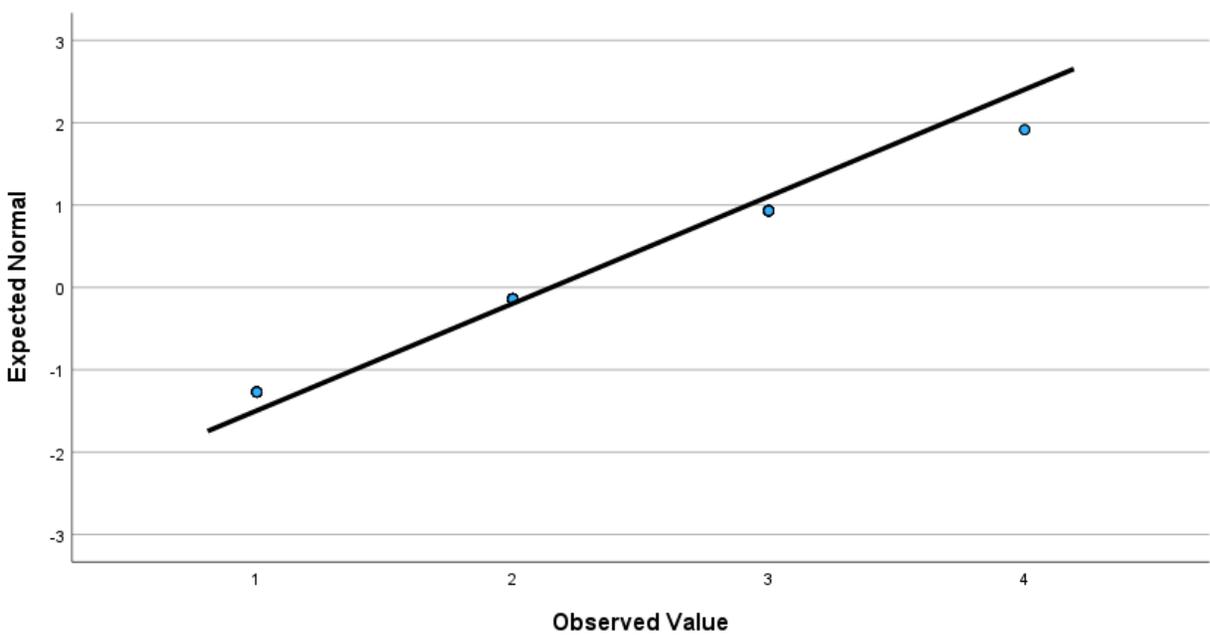
Figure F56

Normal Q-Q Plot of TLC_Coor_CompScore for PrimaryTD_3Groups = ELA
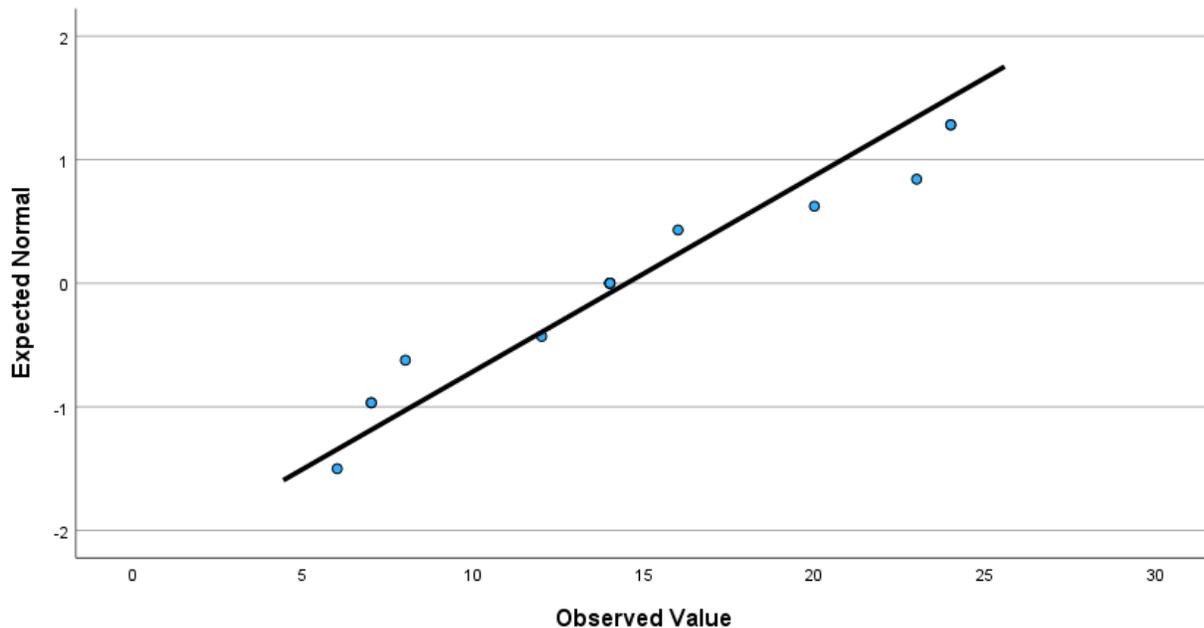
Figure F57

Normal Q-Q Plot of TLC_Coor_CompScore for PrimaryTD_3Groups = Humanities
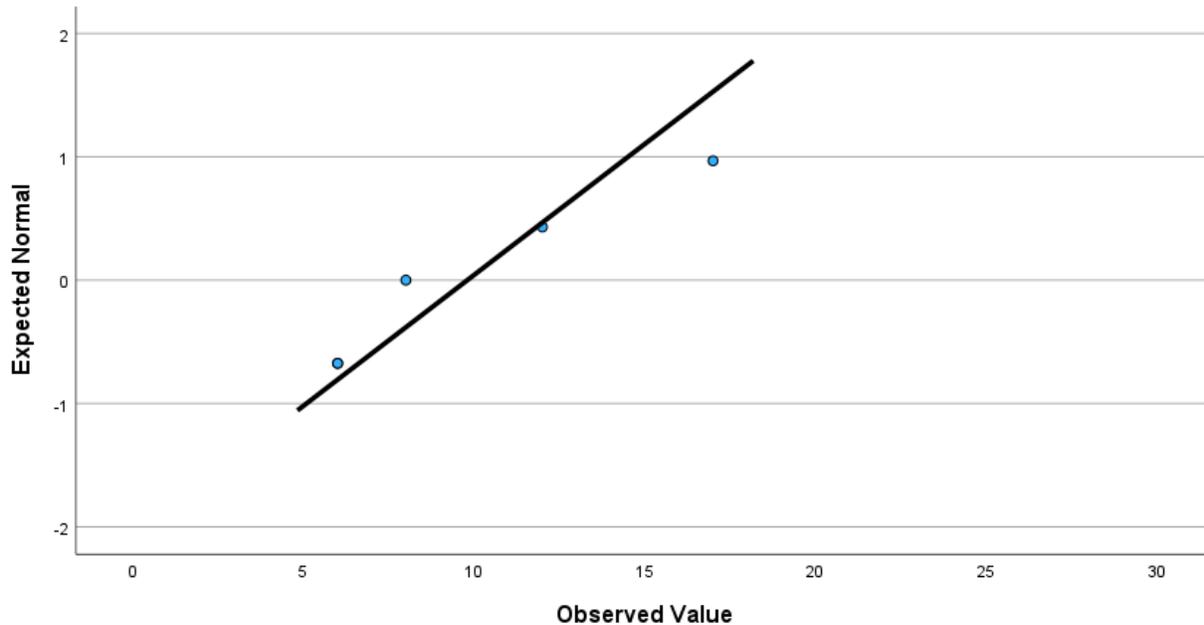
Figure F58

Normal Q-Q Plot of TLC_Coor_CompScore for PrimaryTD_3Groups = Other
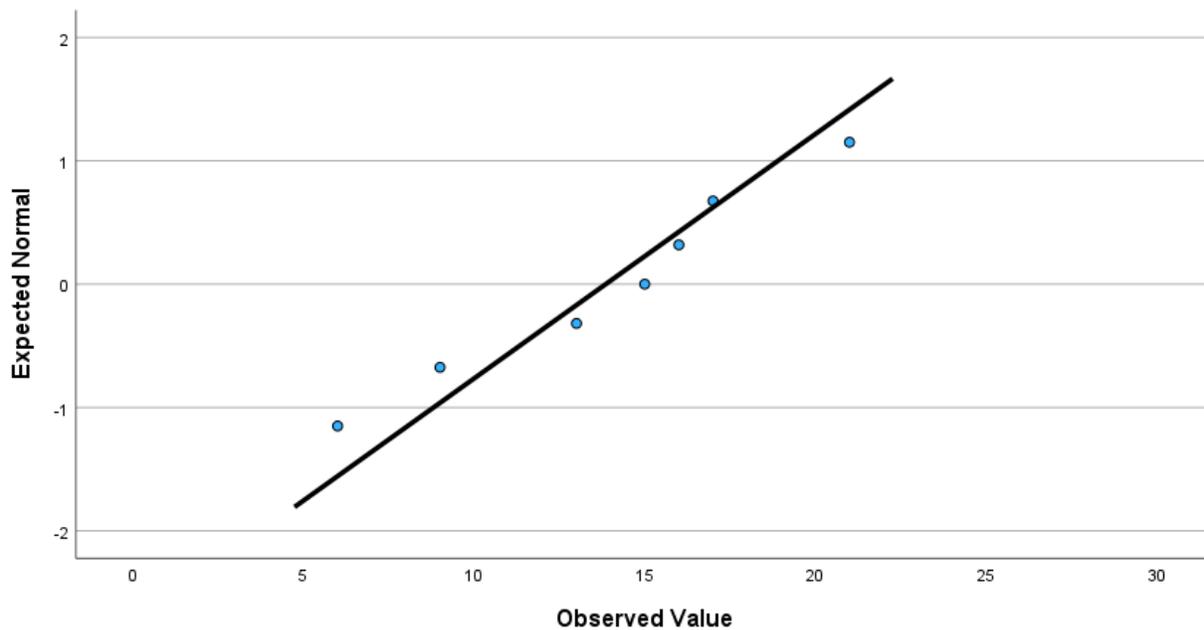
Figure F59

Normal Q-Q Plot of TLC_Coop_CompScore for PrimaryTD_3Groups = ELA
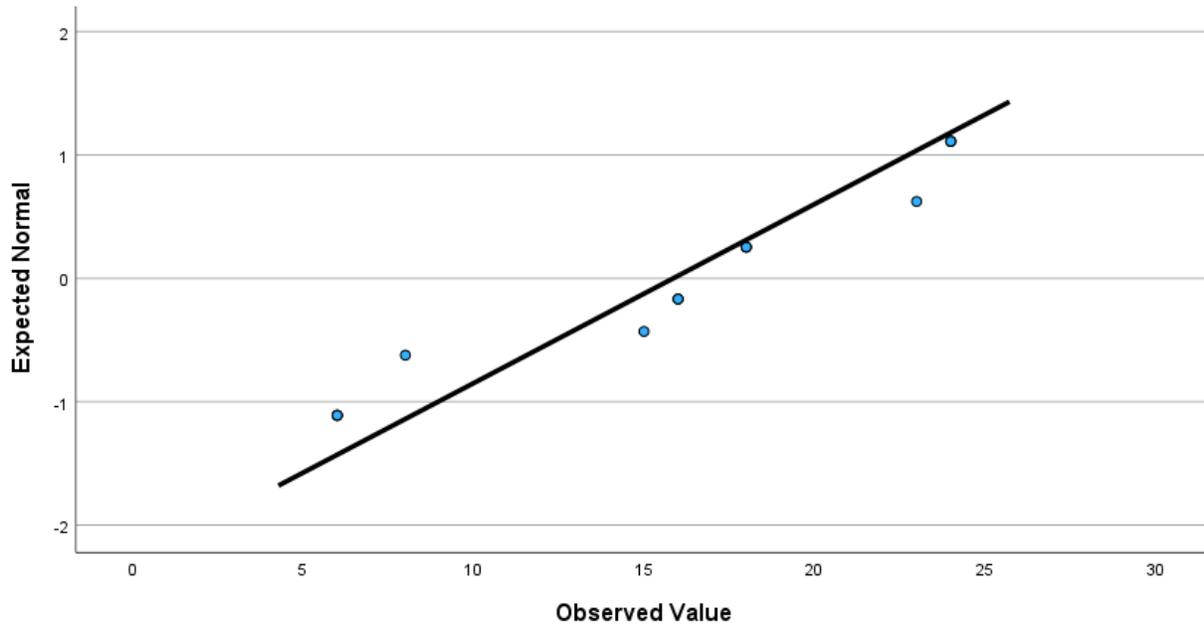
Figure F60

Normal Q-Q Plot of TLC_Coop_CompScore for PrimaryTD_3Groups = Humanities
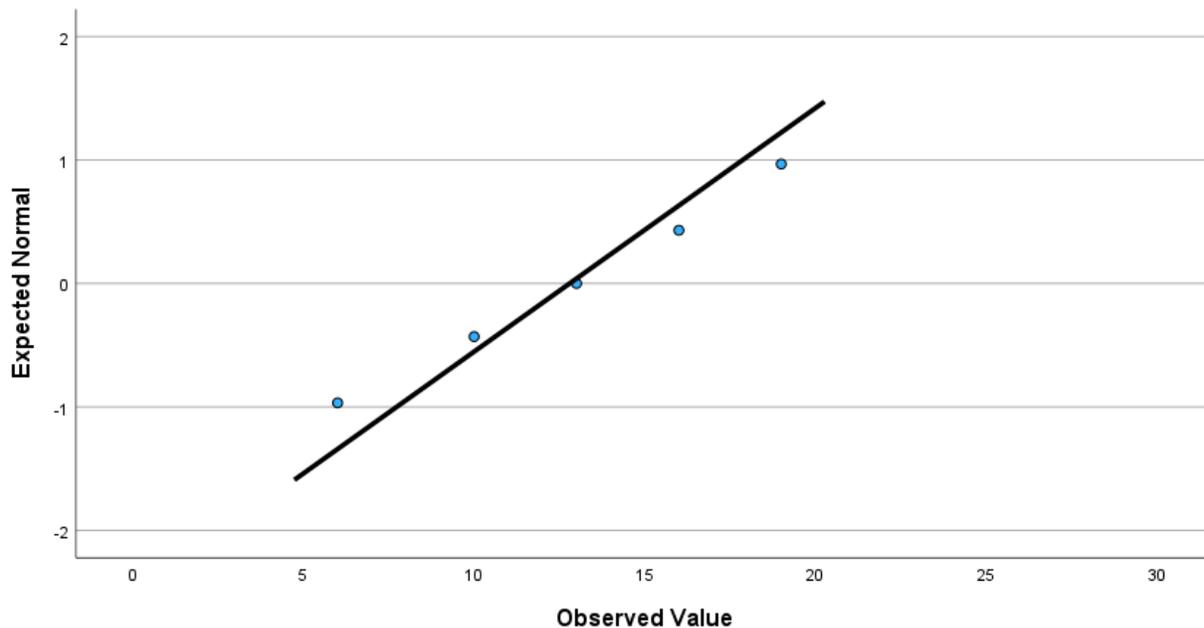
Figure F61

Normal Q-Q Plot of TLC_Coop_CompScore for PrimaryTD_3Groups = Other
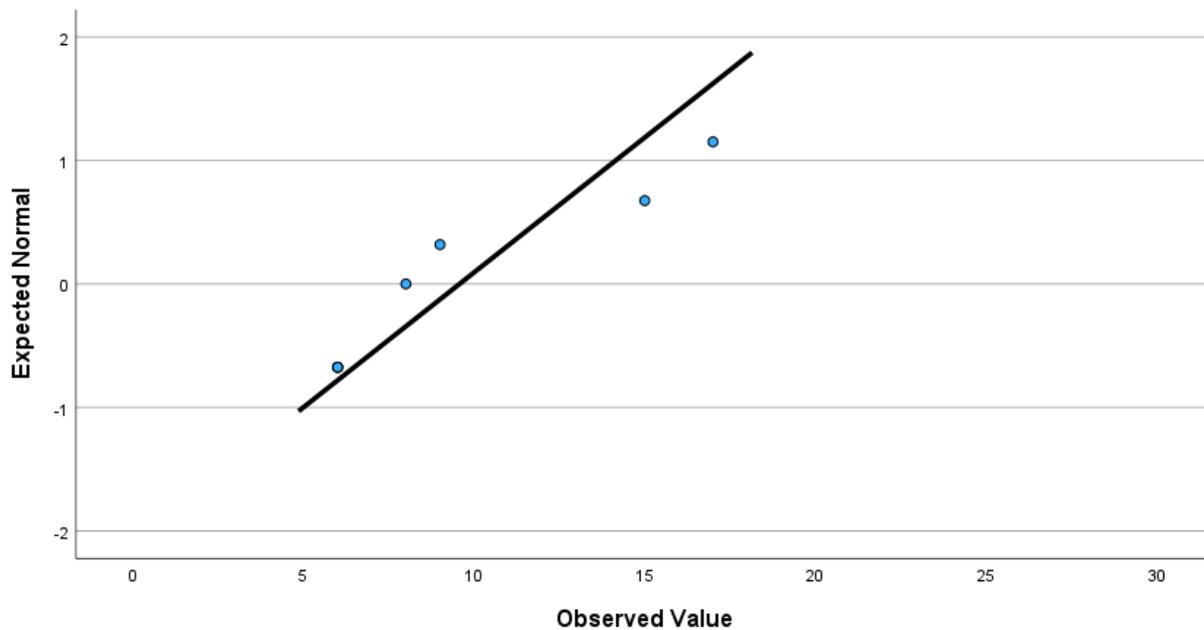
Figure F62

Normal Q-Q Plot of TLC_IntInst_CompScore for PrimaryTD_3Groups = ELA
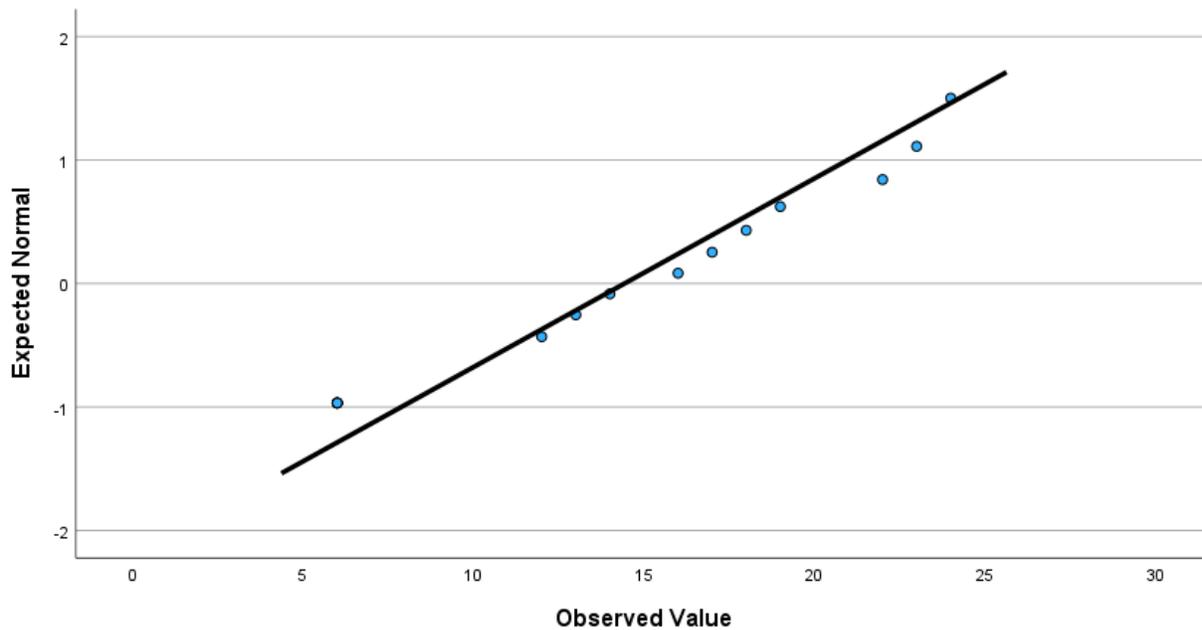
Figure F63

Normal Q-Q Plot of TLC_IntInst_CompScore for PrimaryTD_3Groups = Humanities
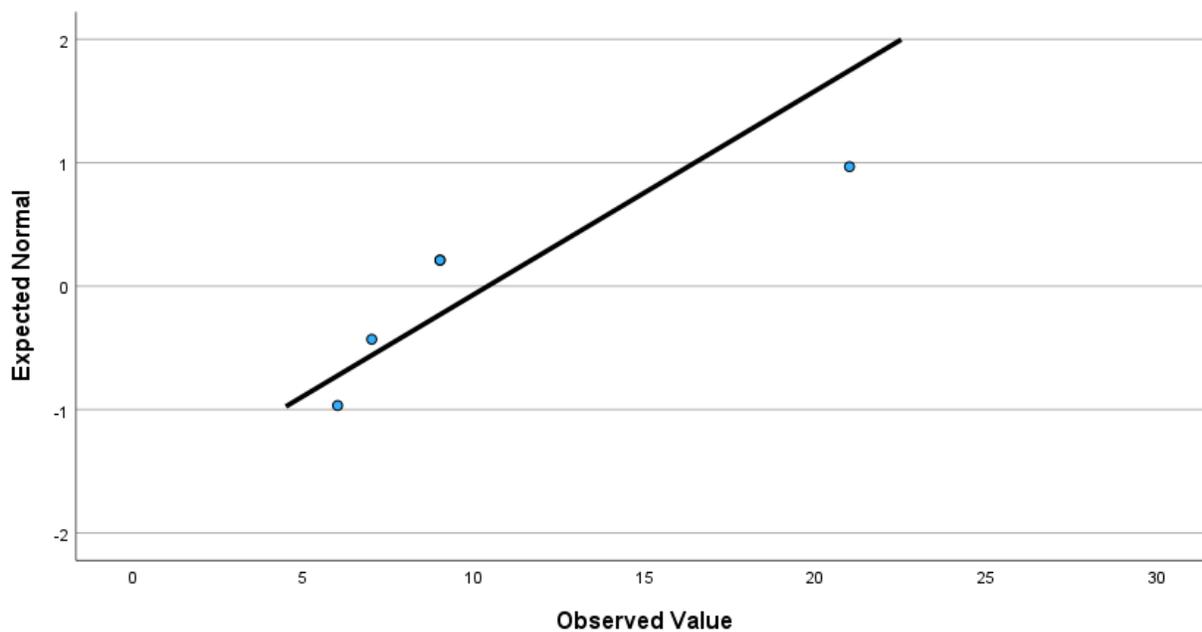
Figure F64

Normal Q-Q Plot of TLC_IntInst_CompScore for PrimaryTD_3Groups = Other
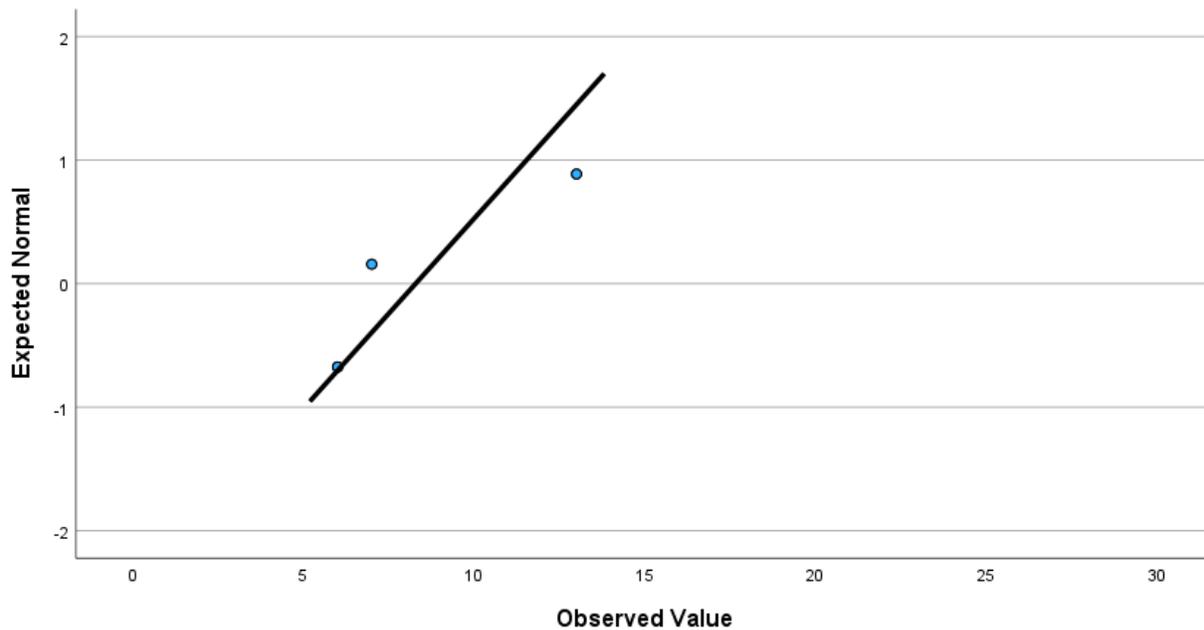
Figure F65

Normal Q-Q Plot of TLC_IntCurr_CompScore for PrimaryTD_3Groups = ELA
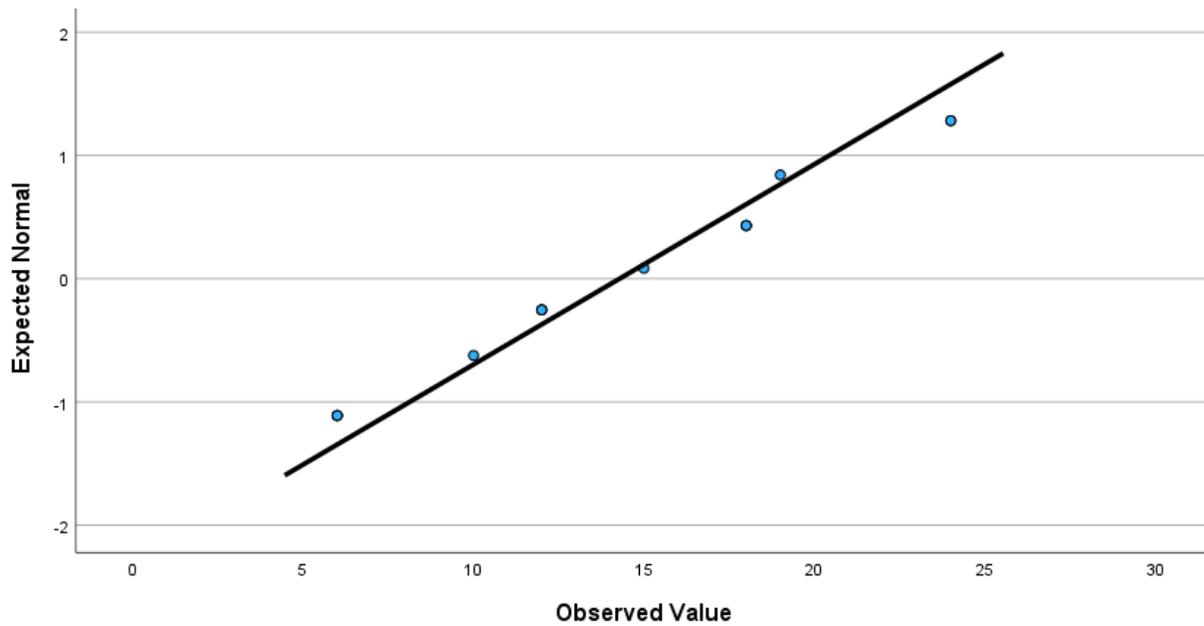
Figure F66

Normal Q-Q Plot of TLC_IntCurr_CompScore for PrimaryTD_3Groups = Humanities
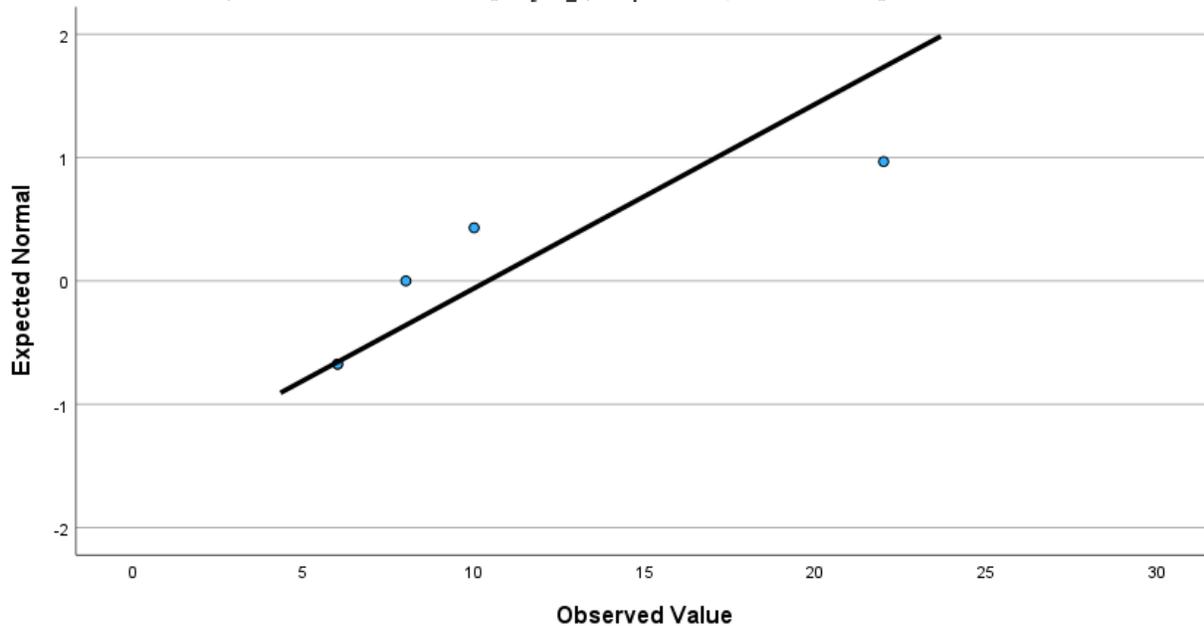
Figure F67

Normal Q-Q Plot of TLC_IntCurr_CompScore for PrimaryTD_3Groups = Other
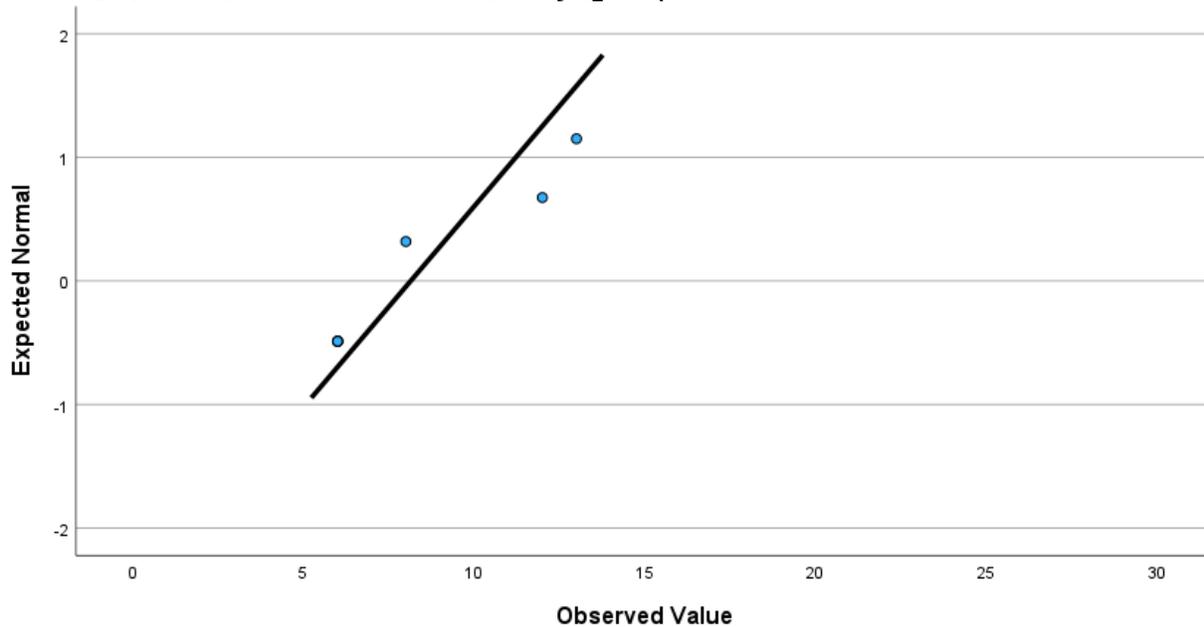
Figure F68

Normal Q-Q Plot of TLC_Coor_CompScore for DQ3_SchoolClassification = Urban
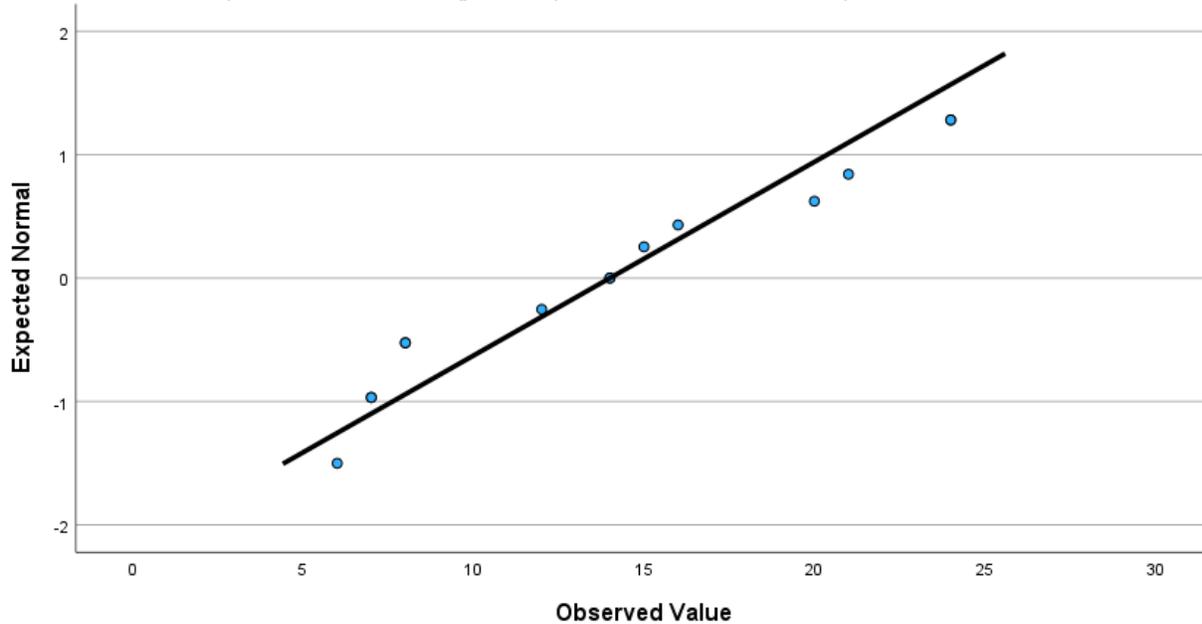
Figure F69

Normal Q-Q Plot of TLC_Coor_CompScore for DQ3_SchoolClassification = Rural
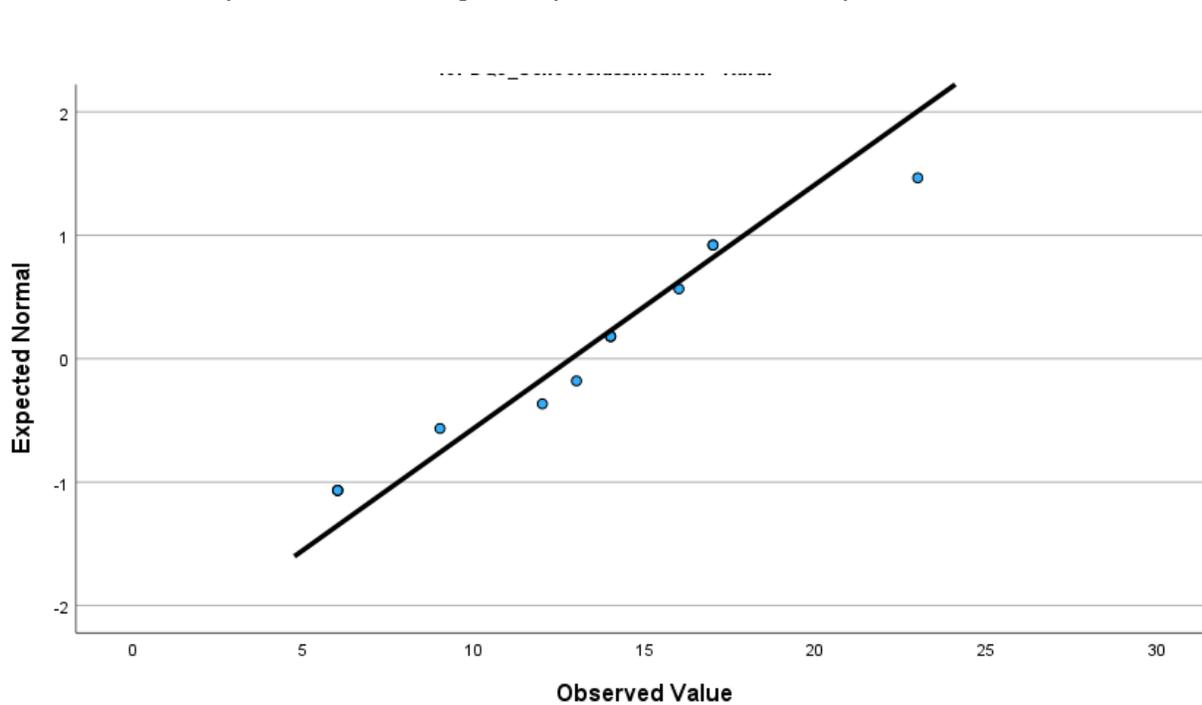
Figure F70

Normal Q-Q Plot of TLC_Coop_CompScore for DQ3_SchoolClassification = Urban
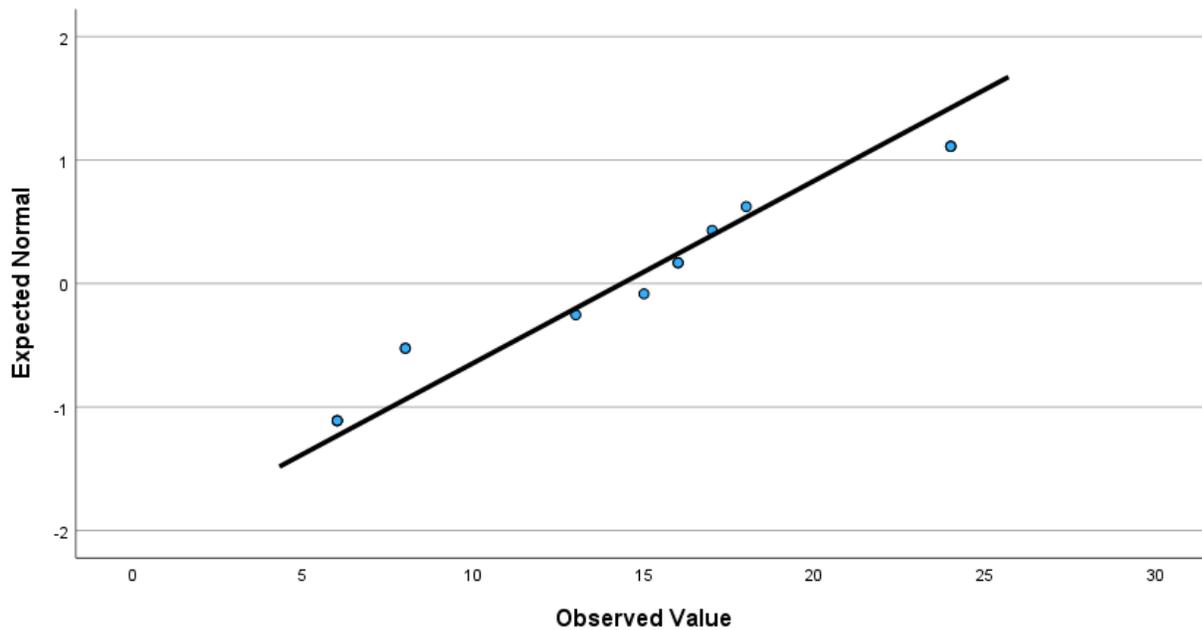
Figure F71

Normal Q-Q Plot of TLC_Coop_CompScore for DQ3_SchoolClassification = Rural
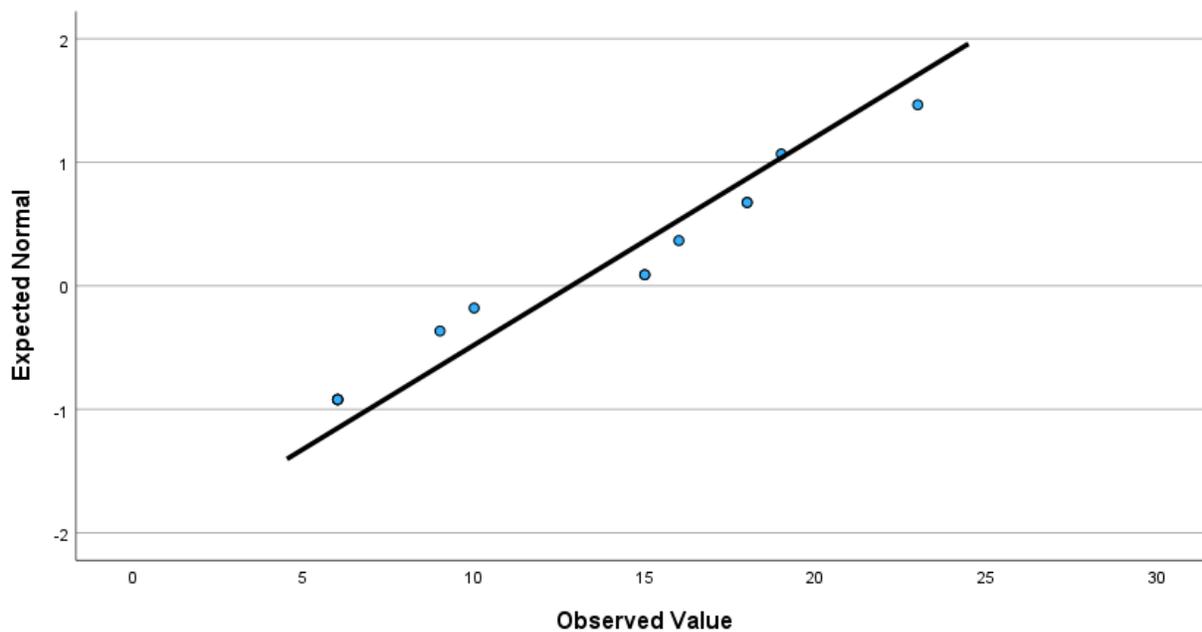
Figure F72

Normal Q-Q Plot of TLC_IntInst_CompScore for DQ3_SchoolClassification = Urban
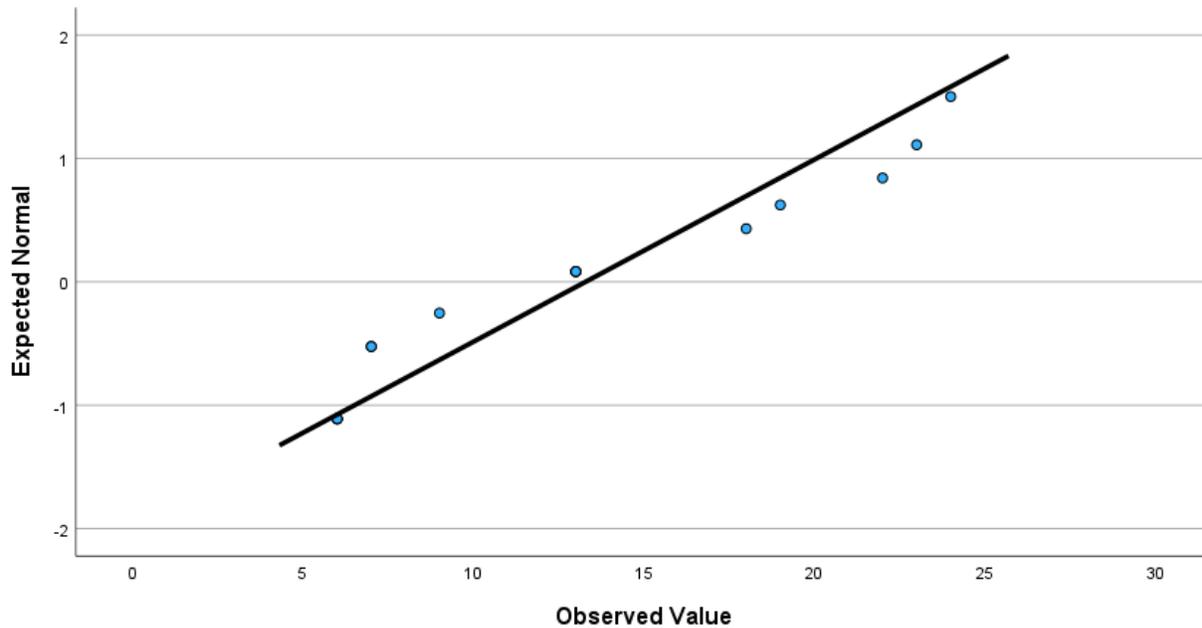
Figure F73

Normal Q-Q Plot of TLC_IntInst_CompScore for DQ3_SchoolClassification = Rural
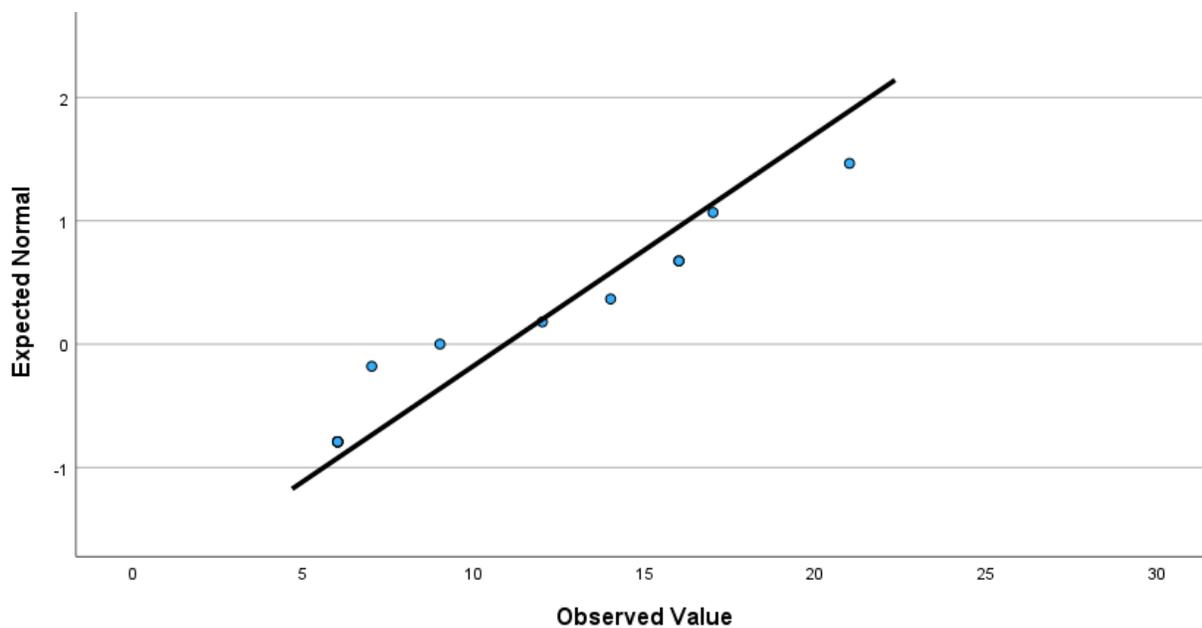
Figure F74

Normal Q-Q Plot of TLC_IntCurrt_CompScore for DQ3_SchoolClassification = Urban
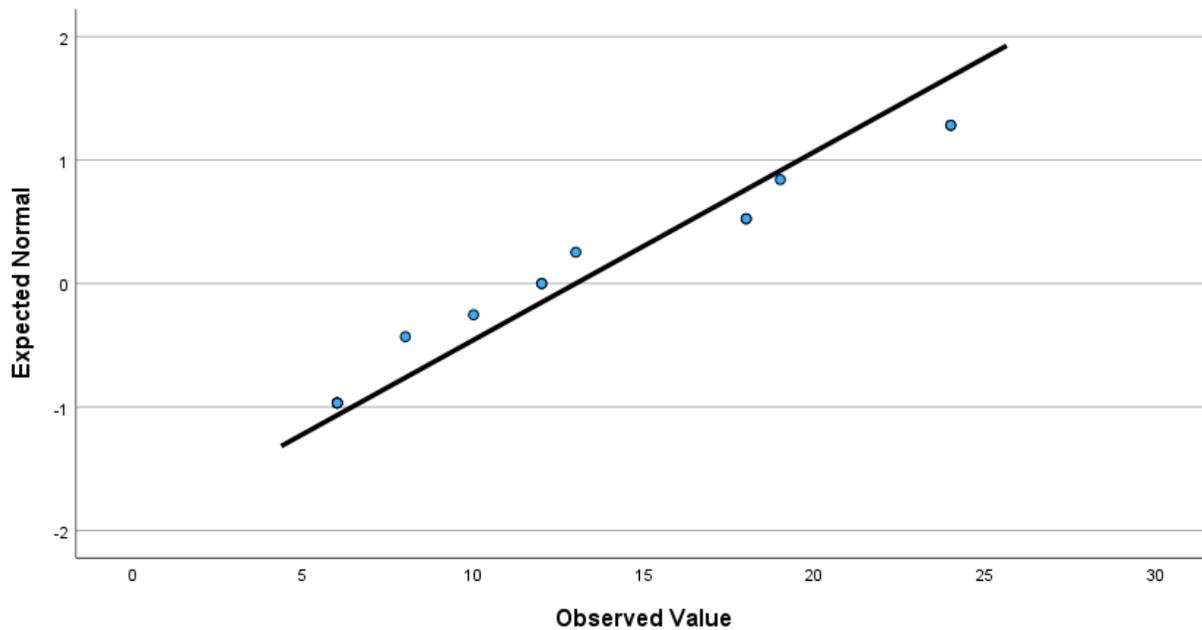
Figure F75

Normal Q-Q Plot of TLC_IntCurrt_CompScore for DQ3_SchoolClassification = Rural
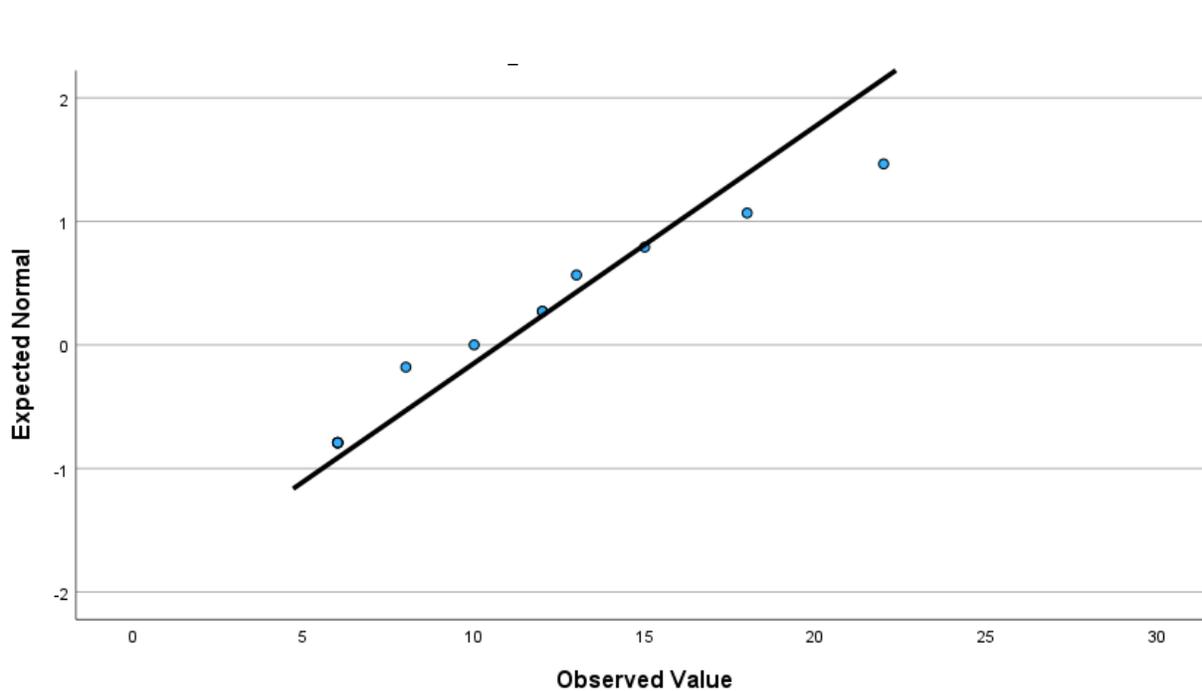
Figure F76

Normal Q-Q Plot of TLC_Coor_CompScore for SchoolSize_2Groups = Small/Medium Schools (<1,000)
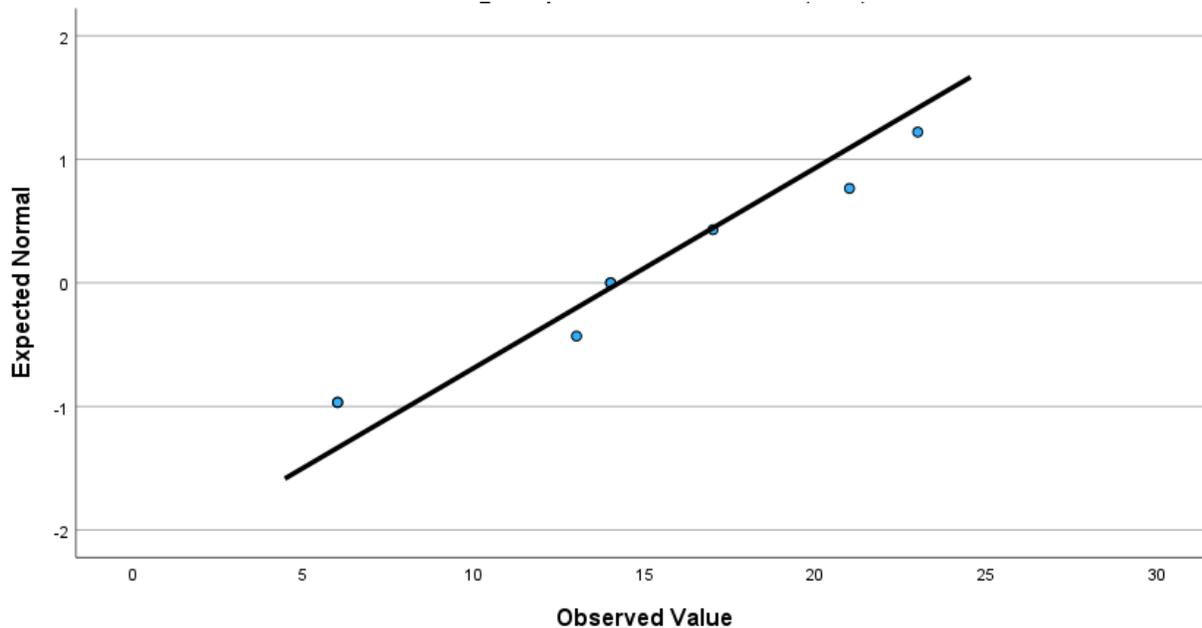
Figure F77

Normal Q-Q Plot of TLC_Coor_CompScore for SchoolSize_2Groups = Large Schools (>1,000)
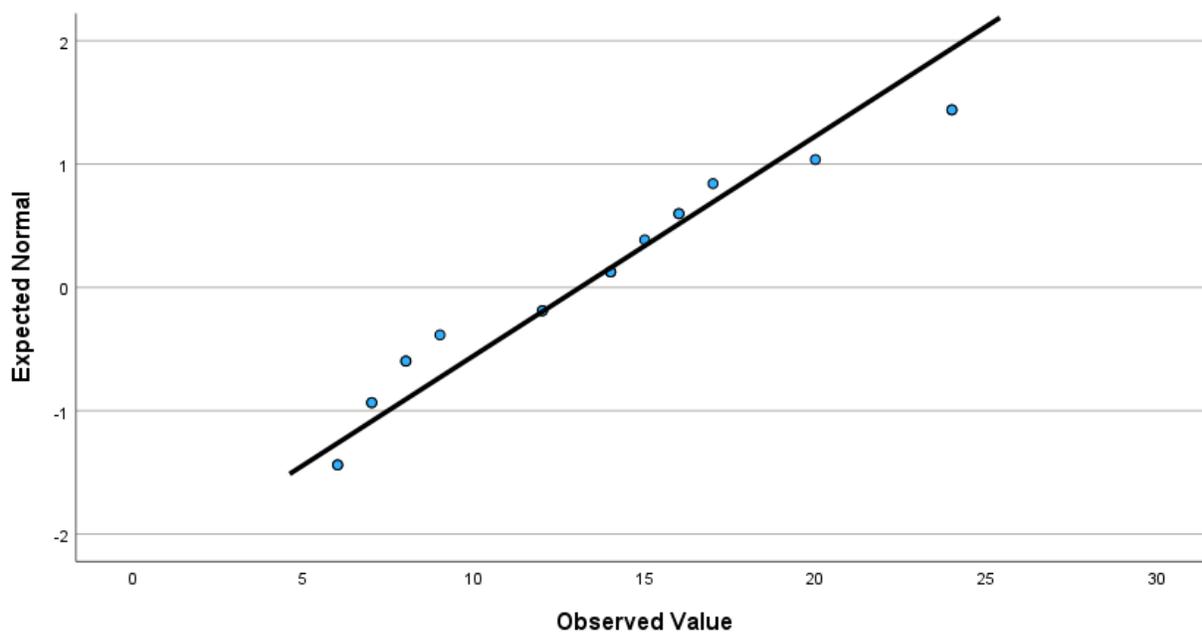
Figure F78

Normal Q-Q Plot of TLC_Coop_CompScore for SchoolSize_2Groups = Small/Medium Schools (<1,000)
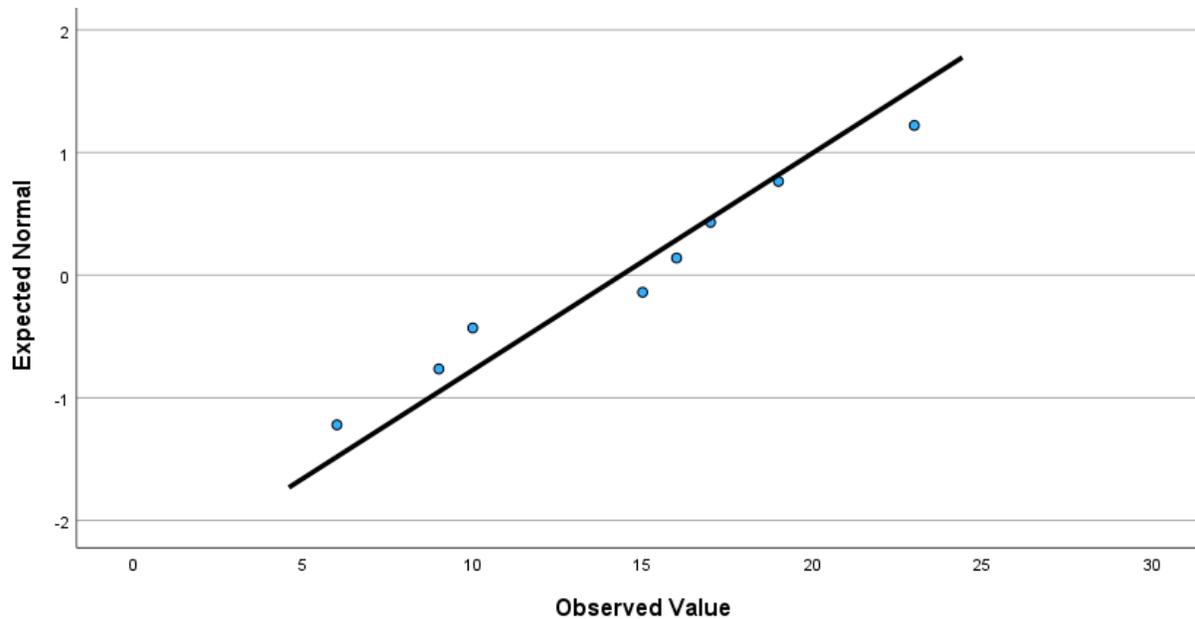
Figure F79

Normal Q-Q Plot of TLC_Coop_CompScore for SchoolSize_2Groups = Large Schools (>1,000)
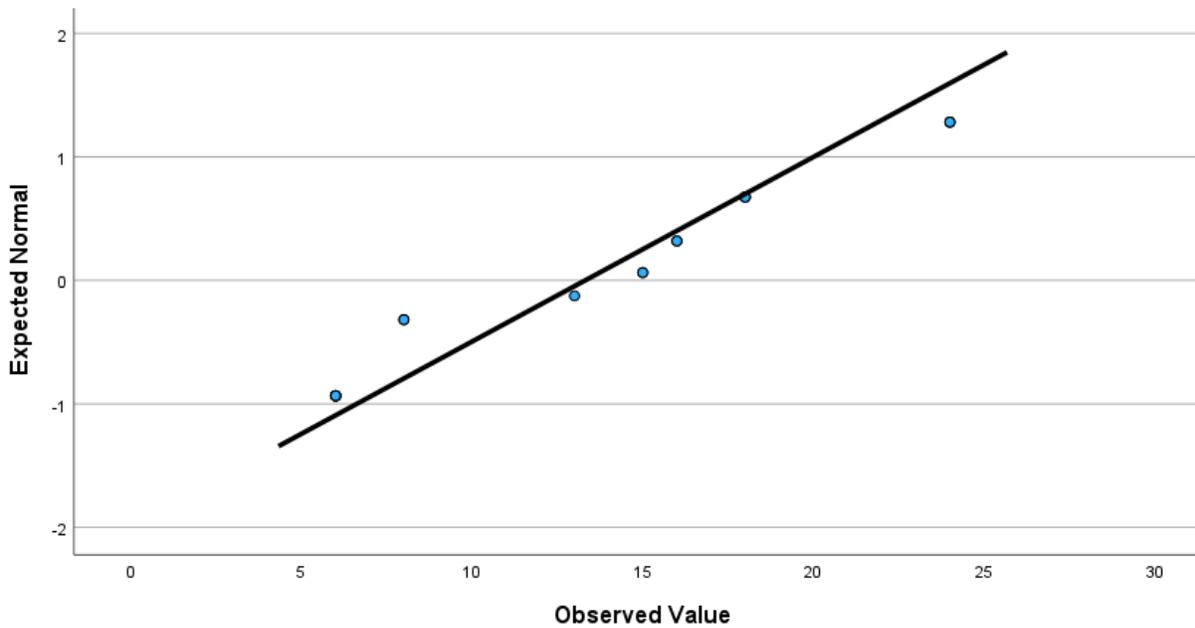
Figure F80

Normal Q-Q Plot of TLC_IntInst_CompScore for SchoolSize_2Groups = Small/Medium Schools (<1,000)
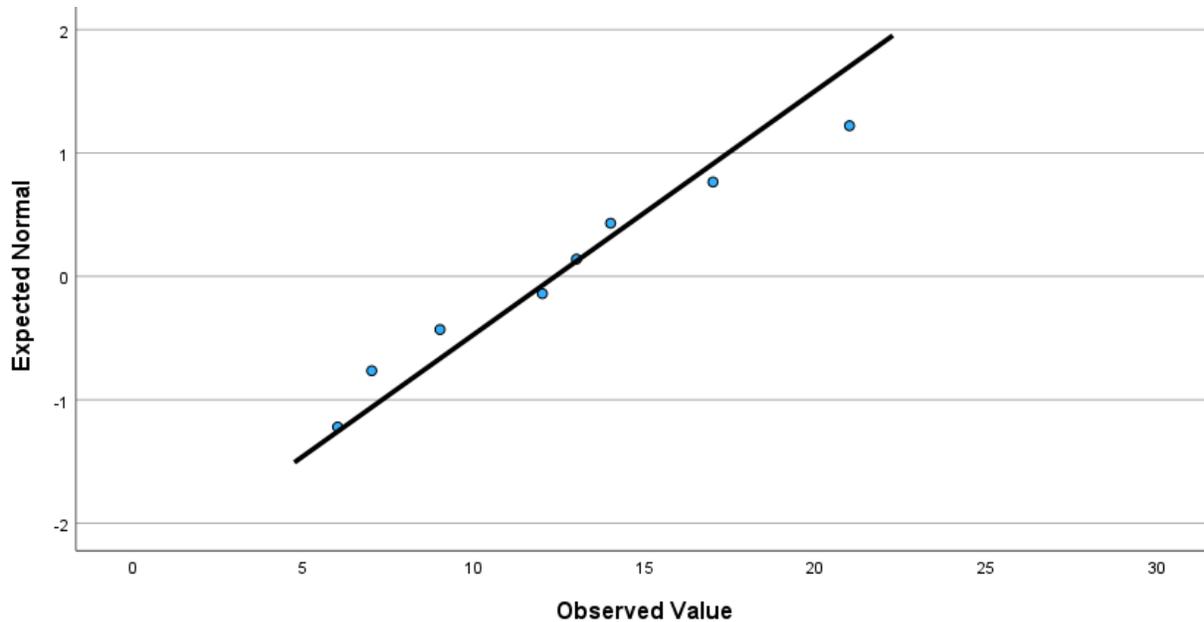
Figure F81

Normal Q-Q Plot of TLC_IntInst_CompScore for SchoolSize_2Groups = Large Schools (>1,000)
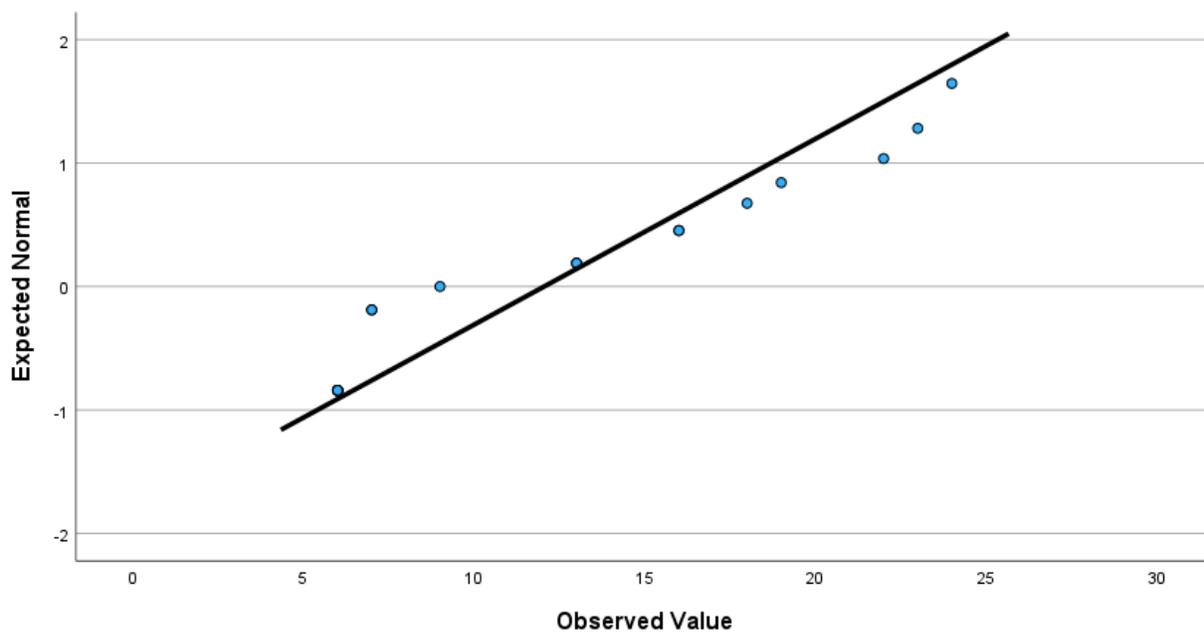
Figure F82

Normal Q-Q Plot of TLC_IntCurr_CompScore for SchoolSize_2Groups = Small/Medium Schools (<1,000)
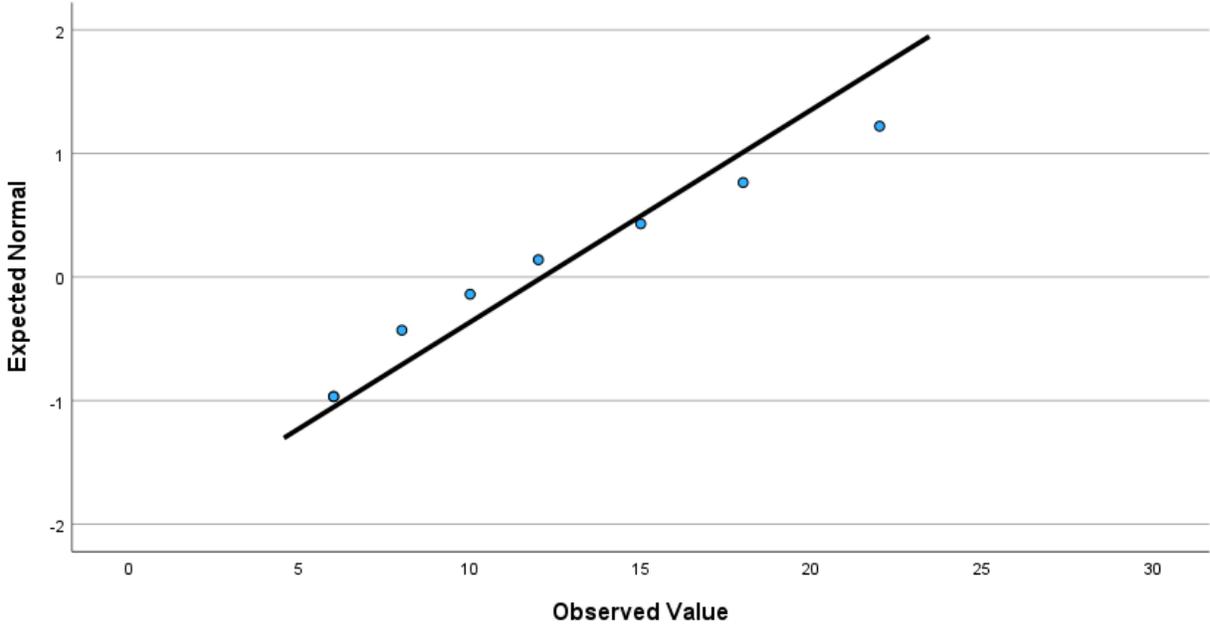
Figure F83

Normal Q-Q Plot of TLC_IntCurr_CompScore for SchoolSize_2Groups = Large Schools (>1,000)
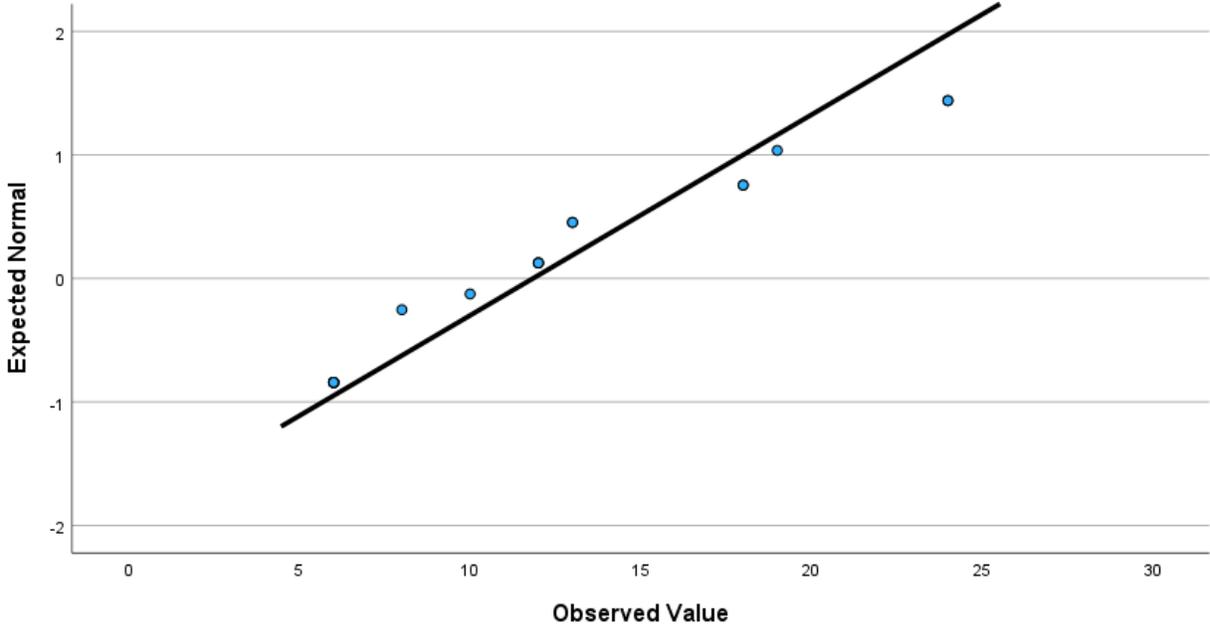
Figure F84

Normal Q-Q Plot of TLC_Coor_CompScore for LibrarianCert = Not Certified
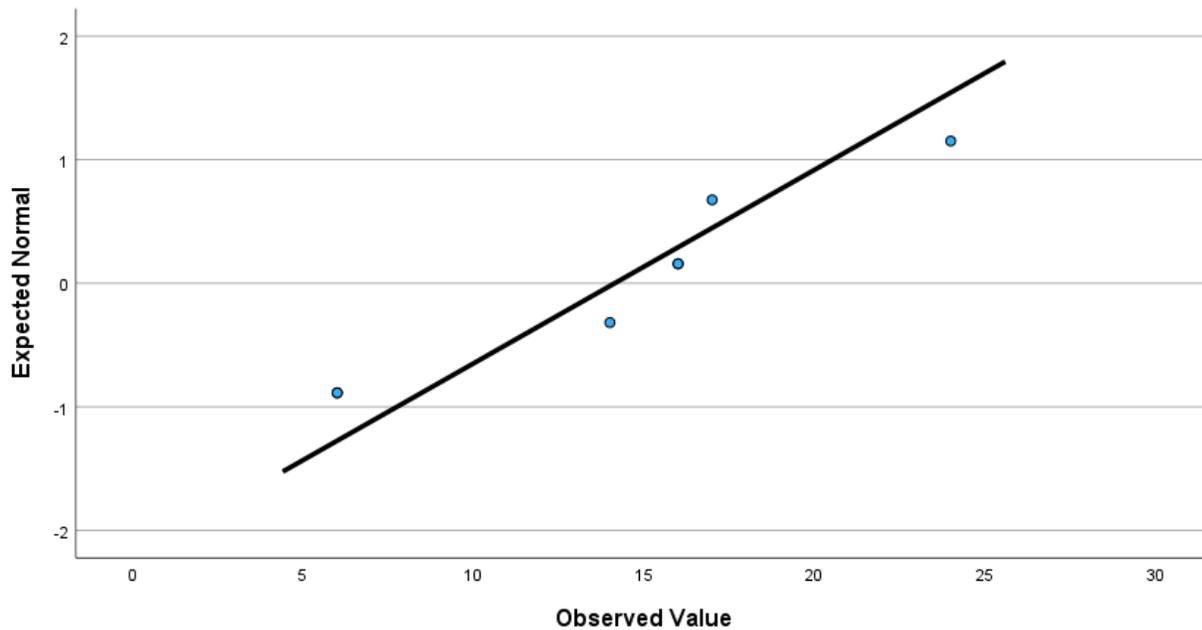
Figure F85

Normal Q-Q Plot of TLC_Coor_CompScore for LibrarianCert = Certified
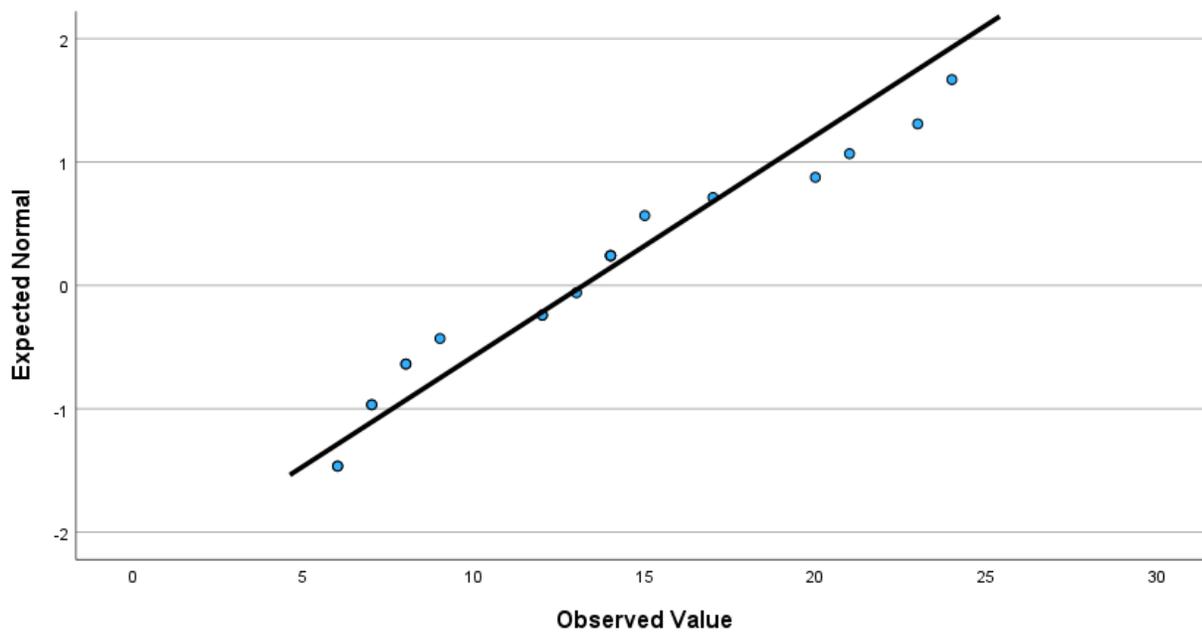
Figure F86

Normal Q-Q Plot of TLC_Coop_CompScore for LibrarianCert = Not Certified
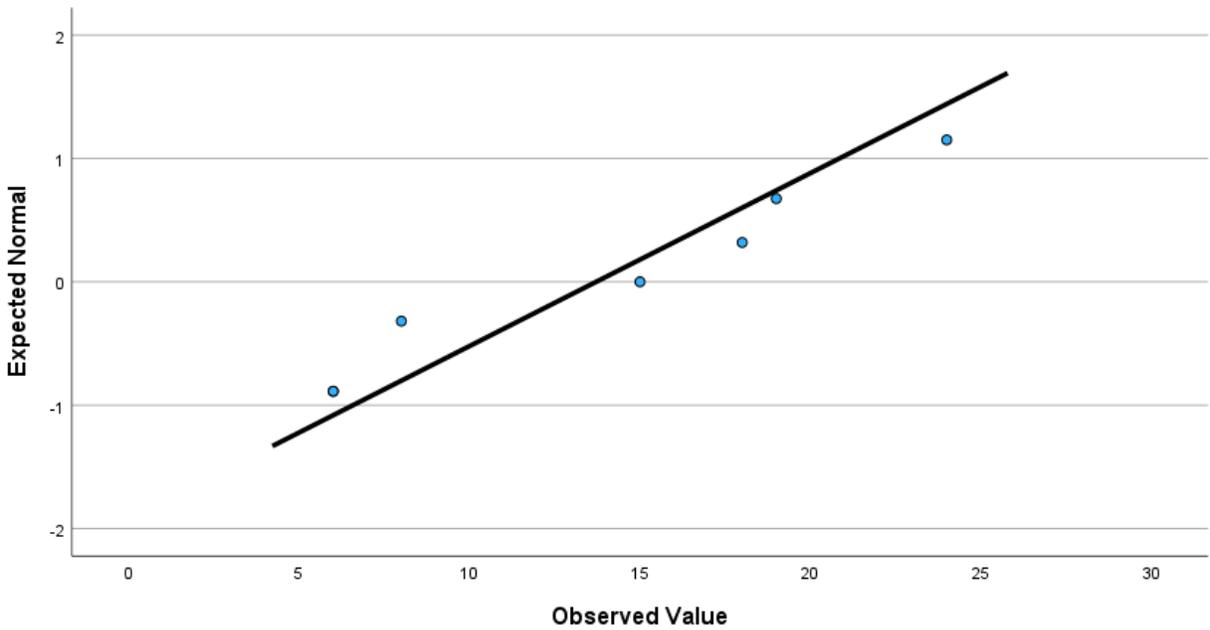
Figure F87

Normal Q-Q Plot of TLC_Coop_CompScore for LibrarianCert = Certified
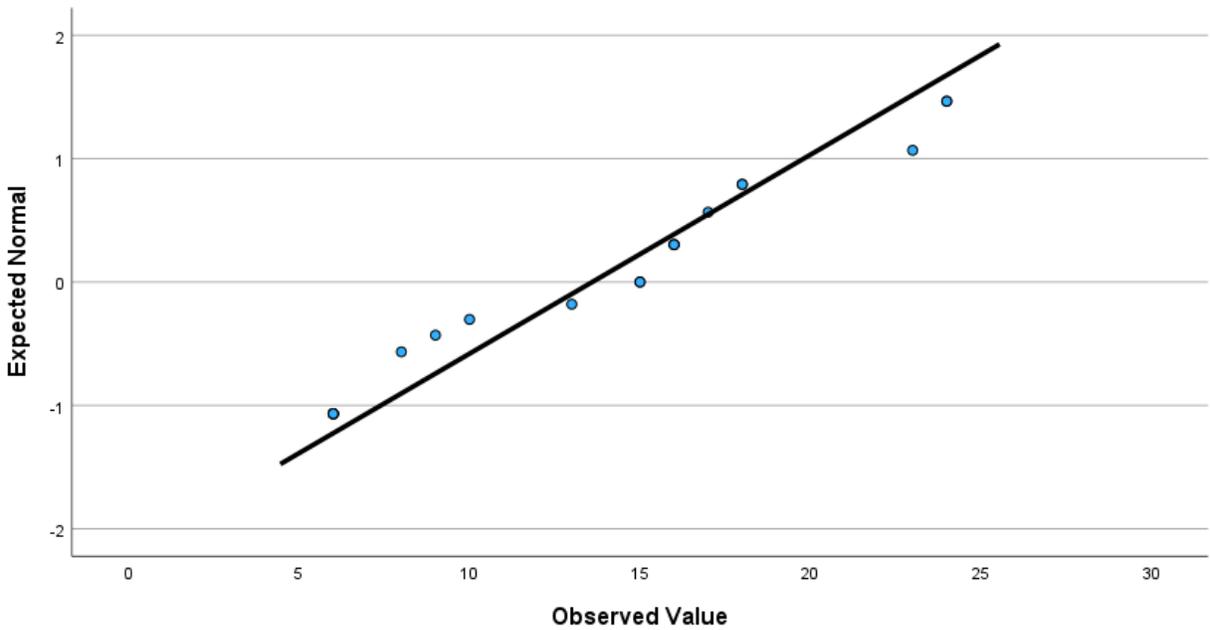
Figure F88

Normal Q-Q Plot of TLC_IntInst_CompScore for LibrarianCert = Not Certified
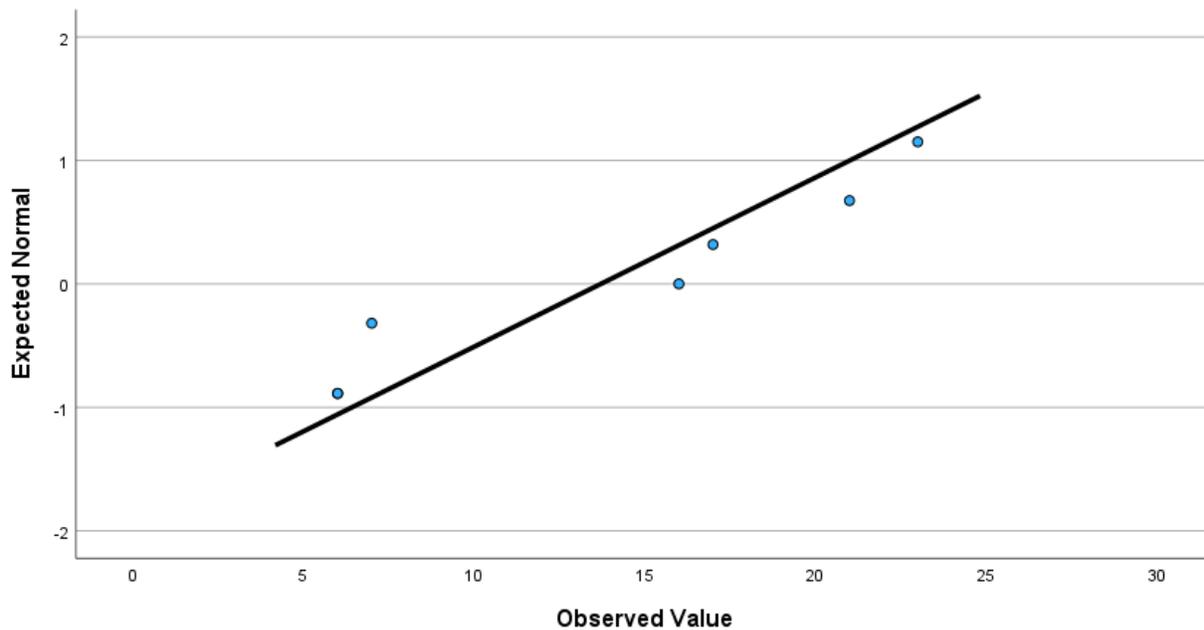
Figure F89

Normal Q-Q Plot of TLC_IntInst_CompScore for LibrarianCert = Certified
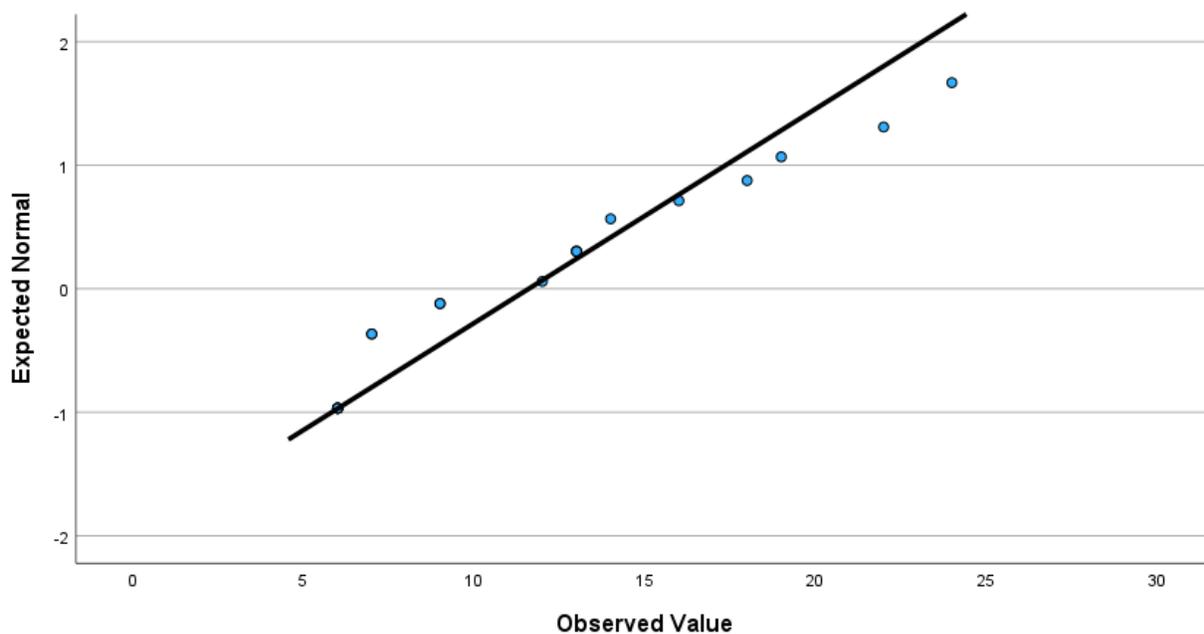
Figure F90

Normal Q-Q Plot of TLC_IntCurr_CompScore for LibrarianCert = Not Certified
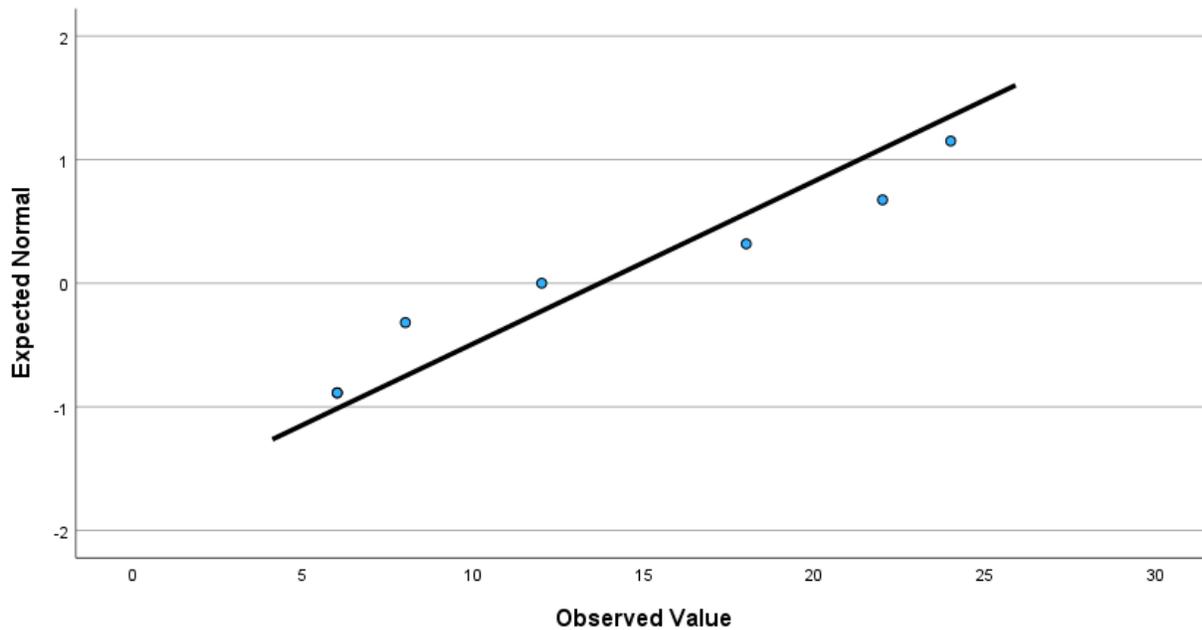
Figure F91

Normal Q-Q Plot of TLC_IntCurr_CompScore for LibrarianCert = Certified
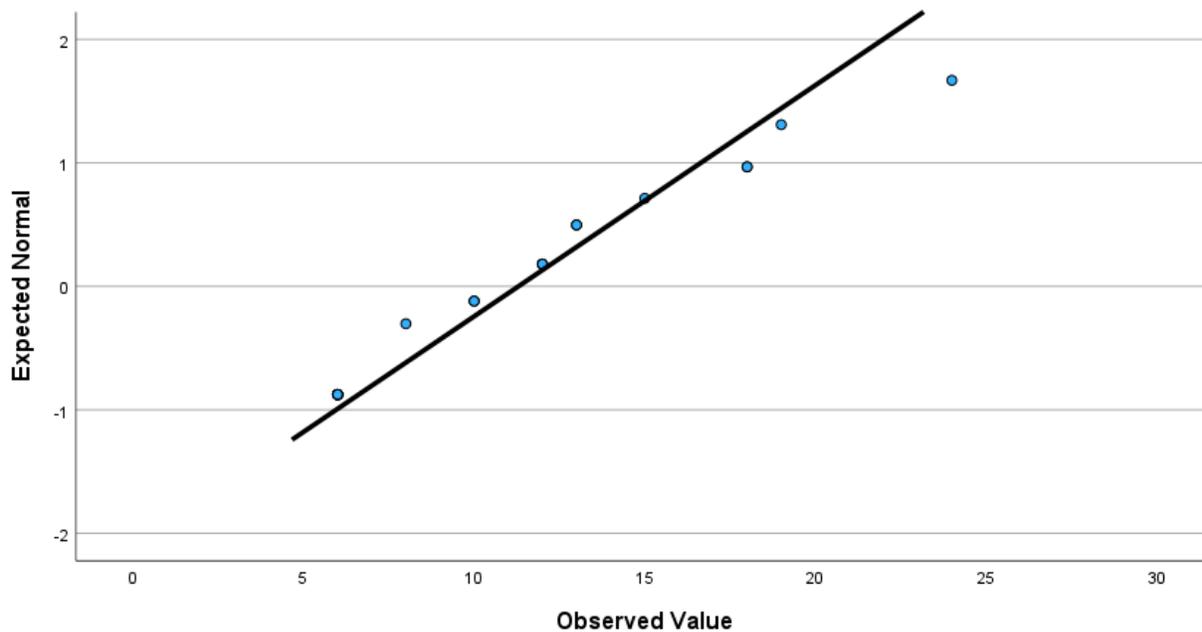
Appendix G: Box Plots

Figure G1

Box plot of Student IL SKILLS – IDs and Addresses Info Need for Primary TD 4 Groups
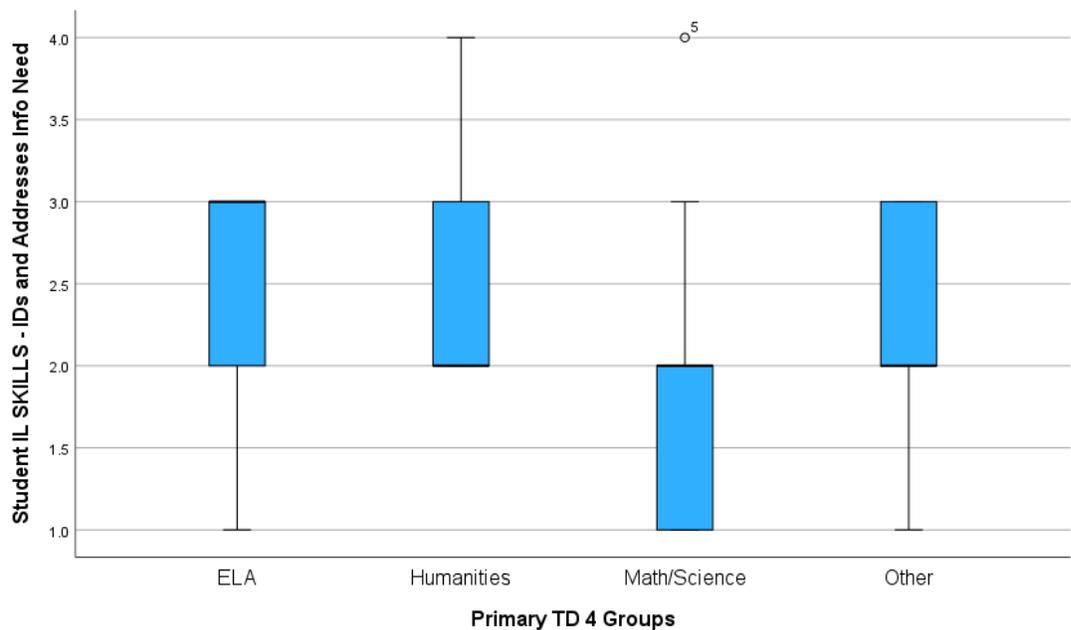
Figure G2

Box plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for Primary TD 4 Groups
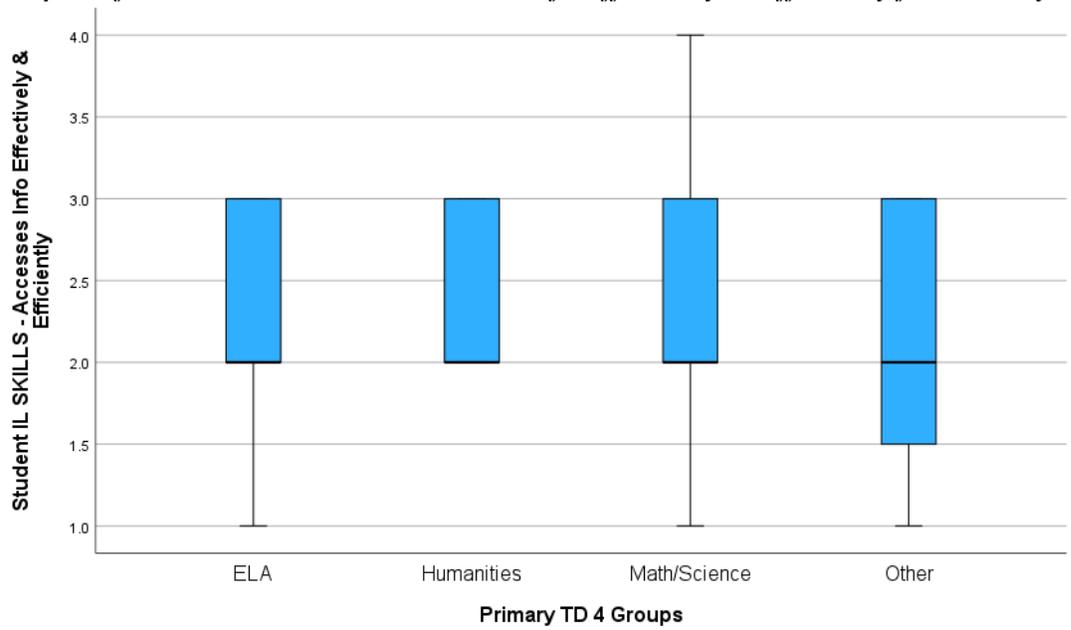
Figure G3

Box plot of Student IL SKILLS – Evals and Thinks Critically About Info for Primary TD 4 Groups
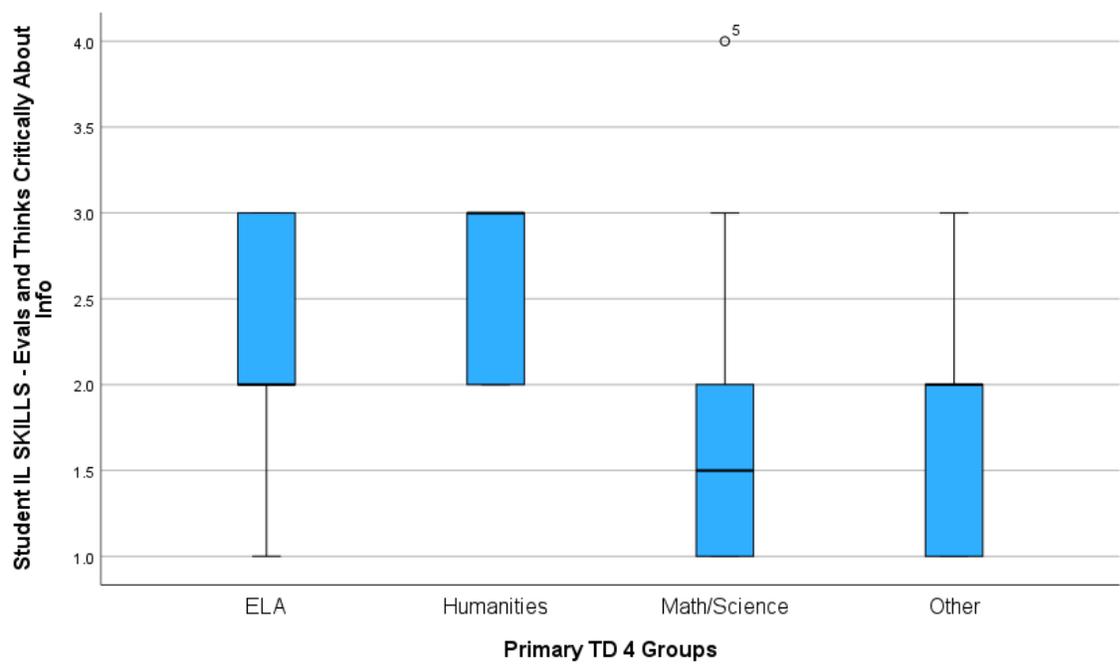
Figure G4

Box plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for Primary TD 4 Groups
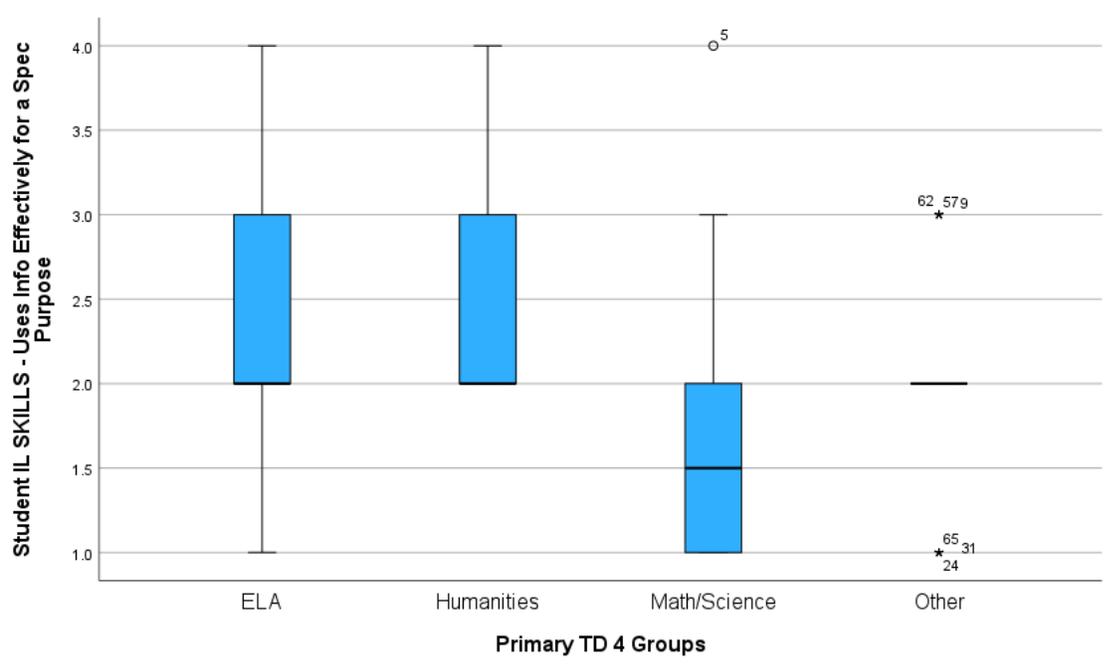
Figure G5

Box plot of Student IL SKILLS – Uses Info Ethically & Legally for Primary TD 4 Groups
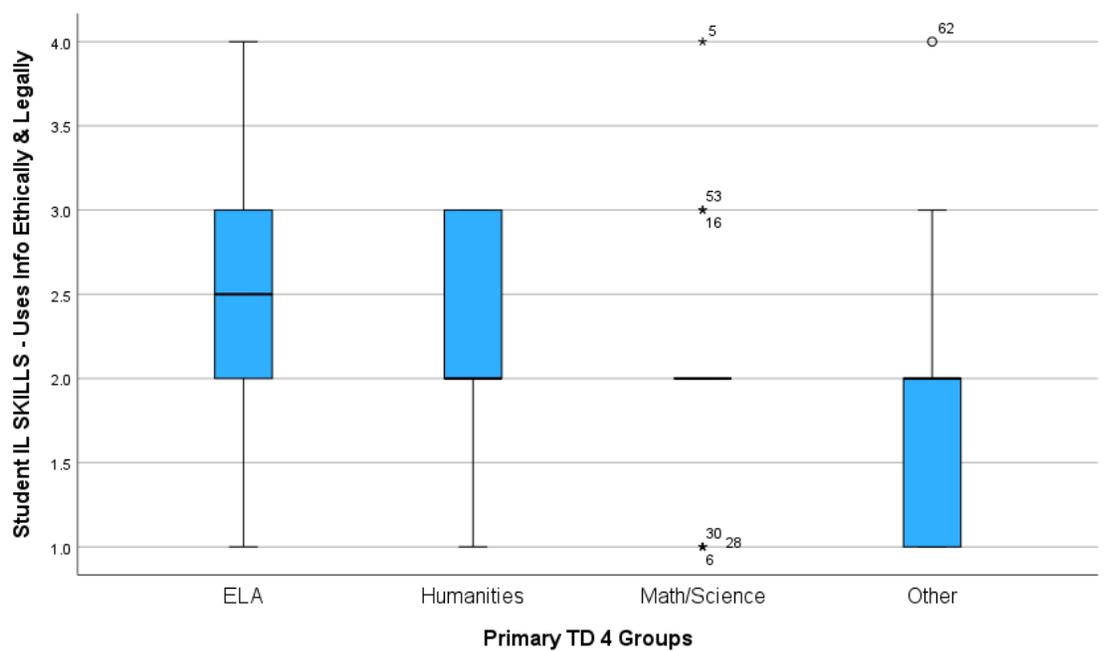
Figure G6

Box plot of Student IL SKILLS – IDs and Addresses Info Need for School Classification
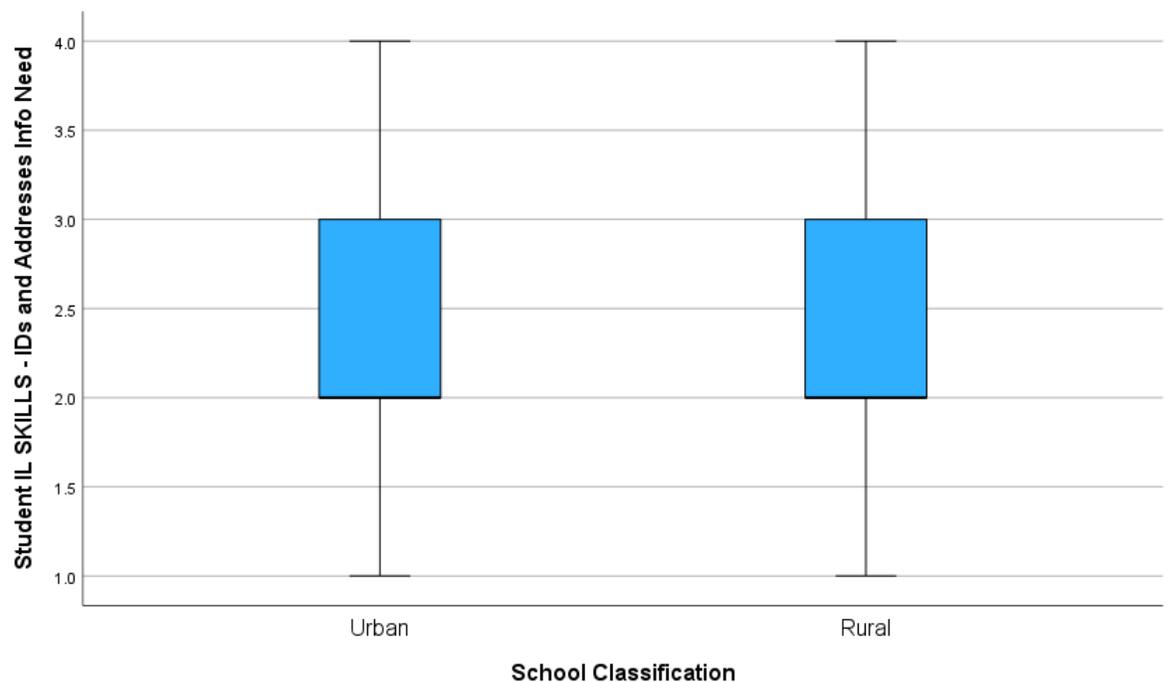
Figure G7

Box plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for School Classification
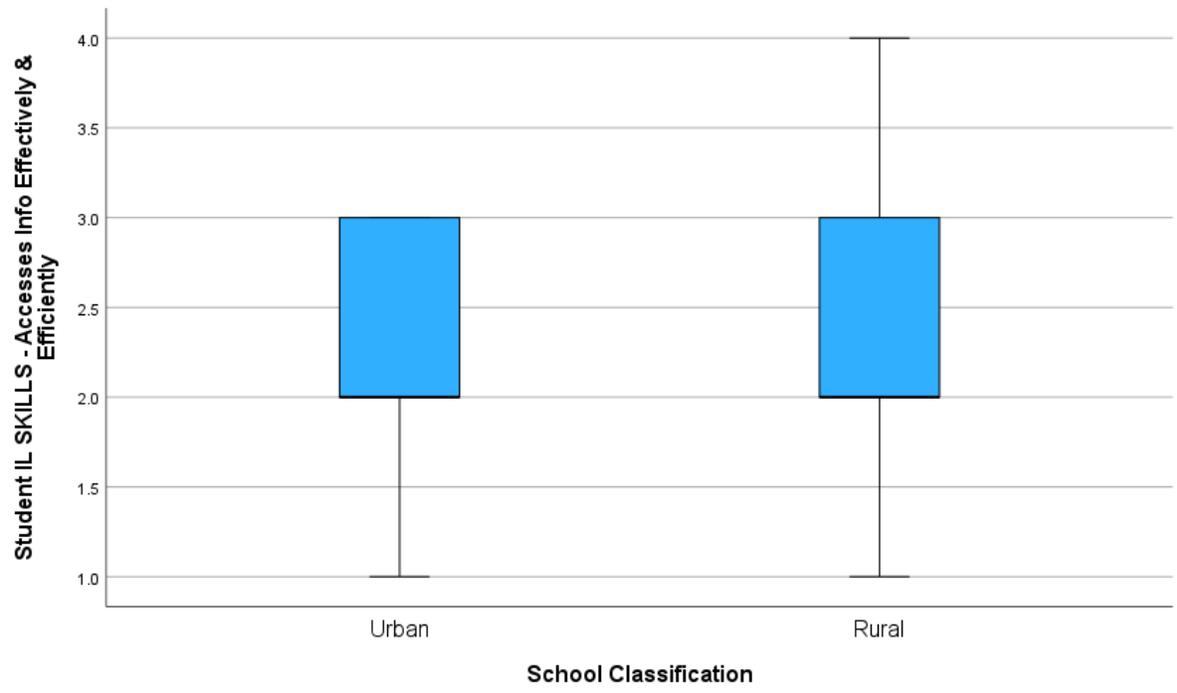
Figure G8

Box plot of Student IL SKILLS – Evals and Thinks Critically About Info for School Classification
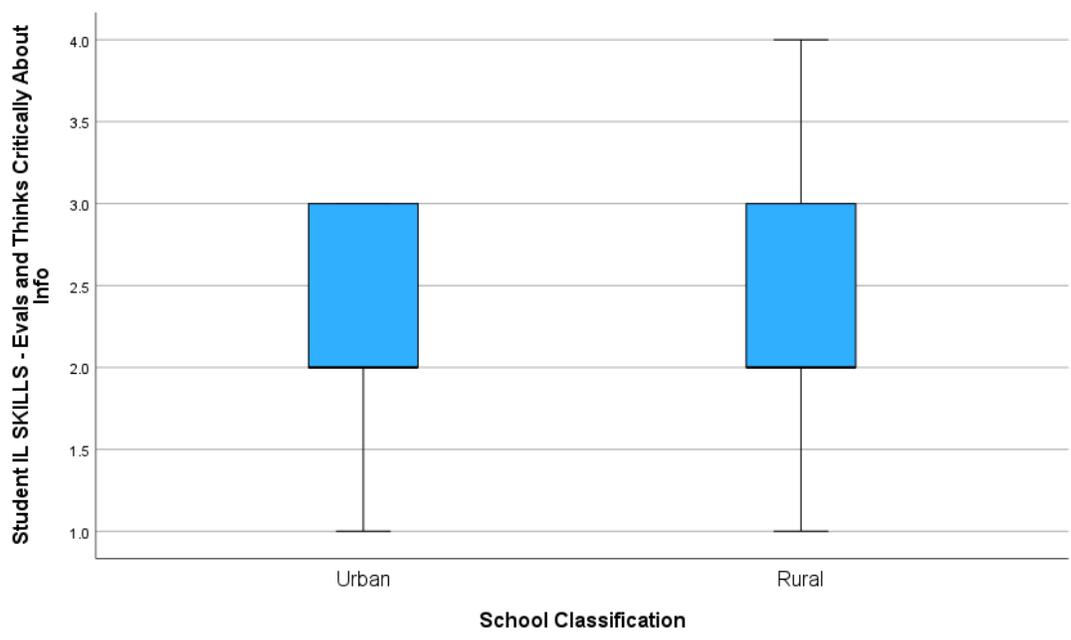
Figure G9

Box plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for School Classification
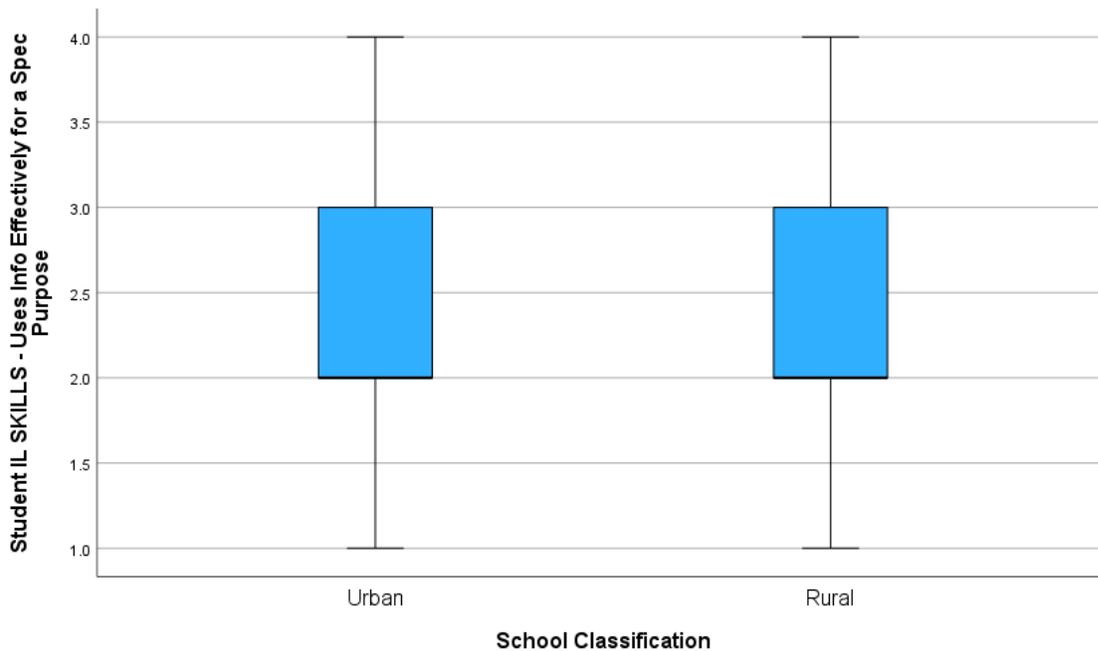
Figure G10

Box plot of Student IL SKILLS – Uses Info Ethically & Legally for School Classification
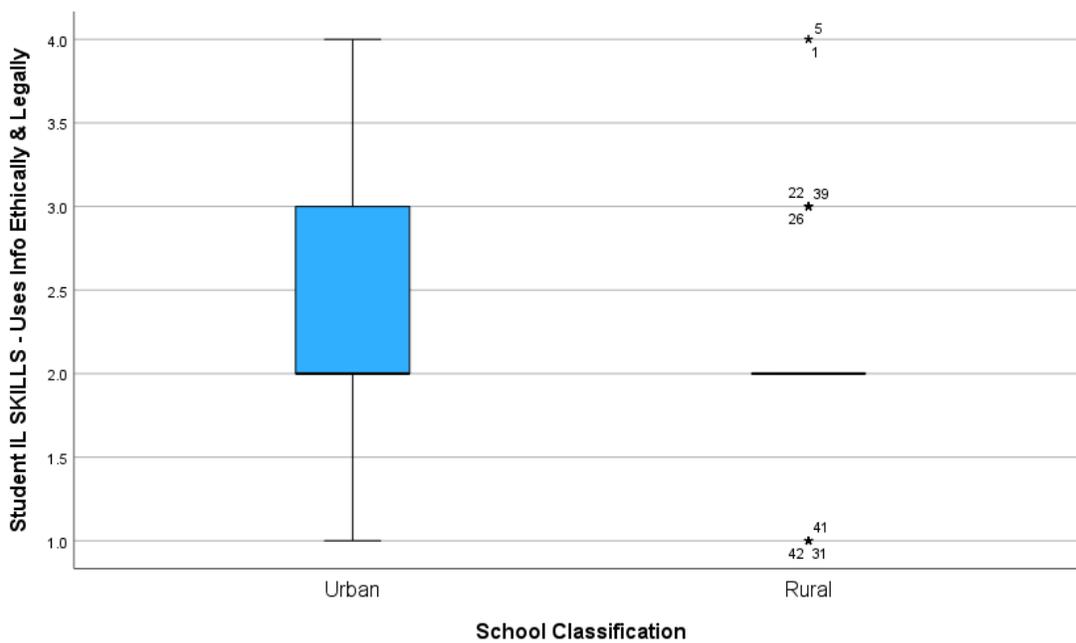
Figure G11

Box plot of Student IL SKILLS – IDs and Addresses Info Need for School Size
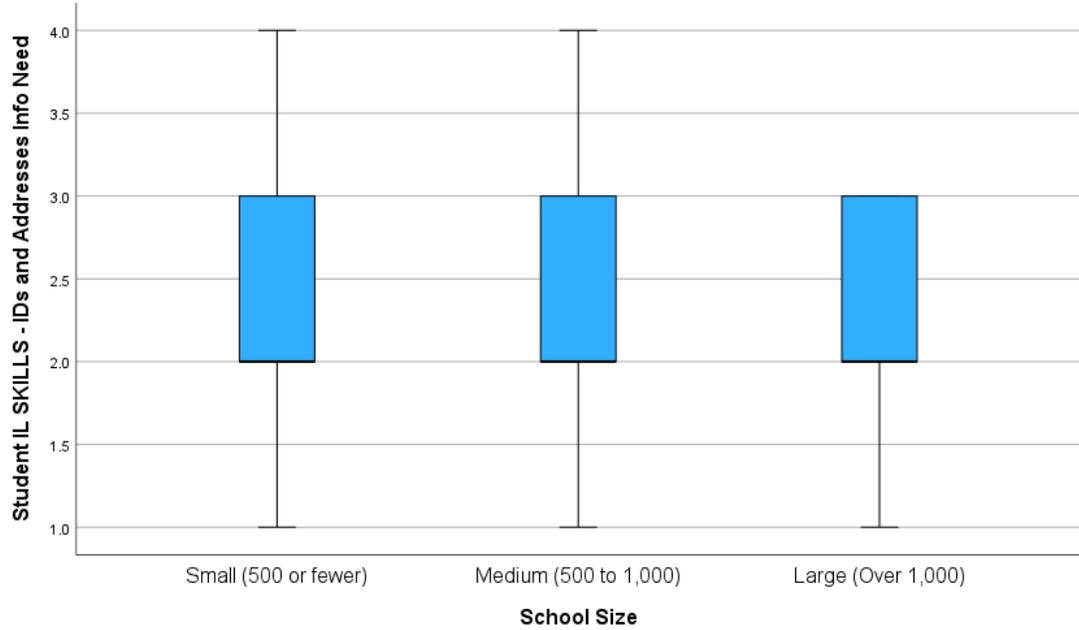
Figure G12

Box plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for School Size
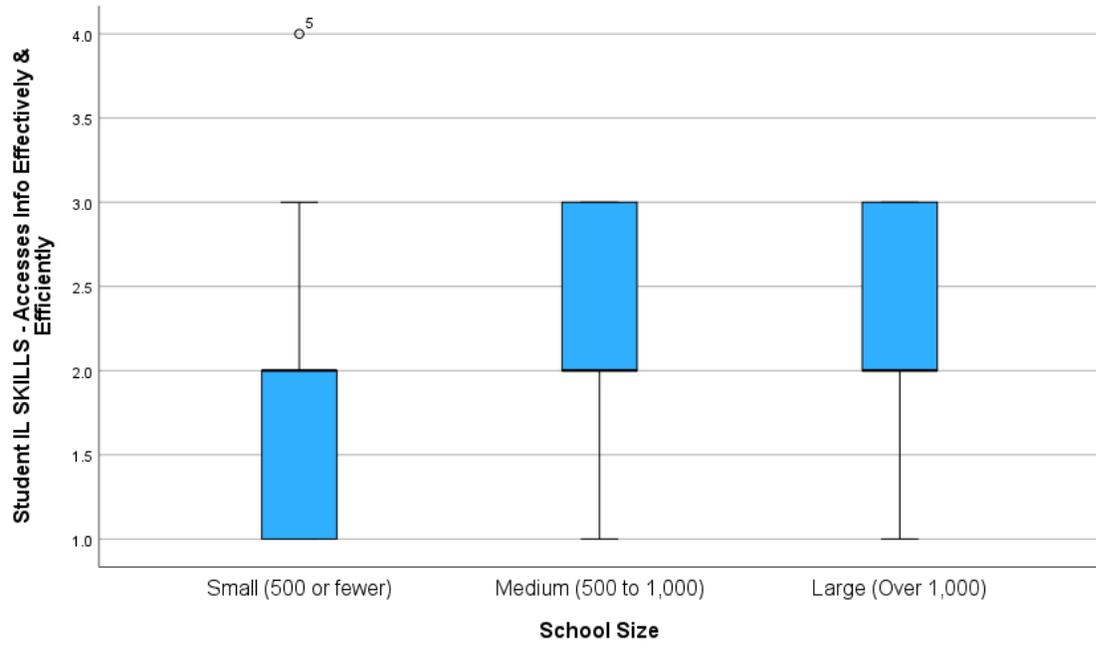
Figure G13

Box plot of Student IL SKILLS – Evals and Thinks Critically About Info for School Size
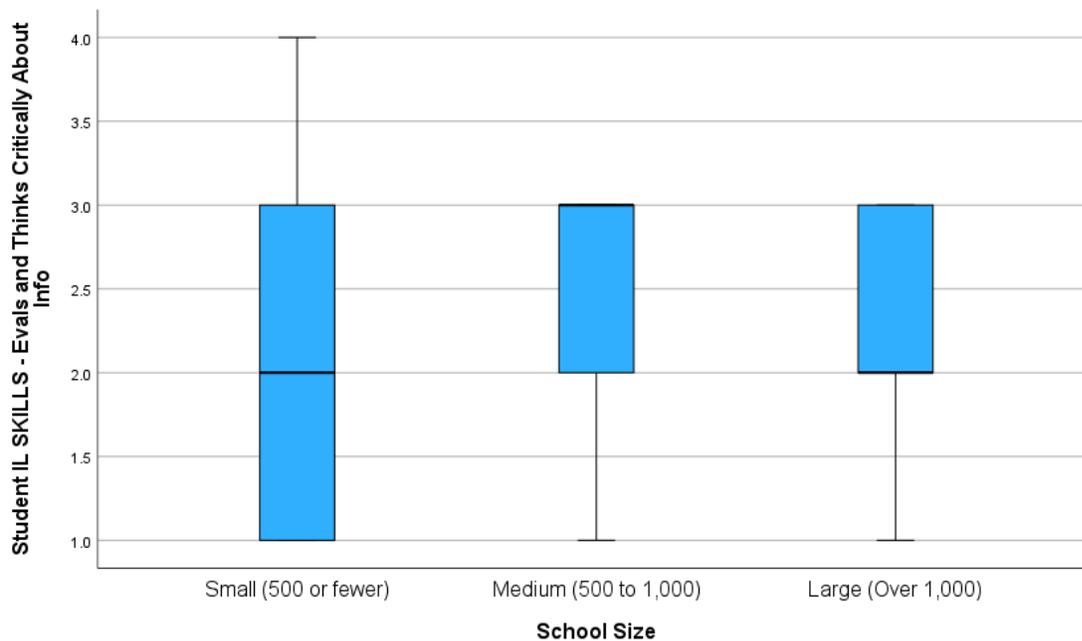
Figure G14

Box plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for School Classification
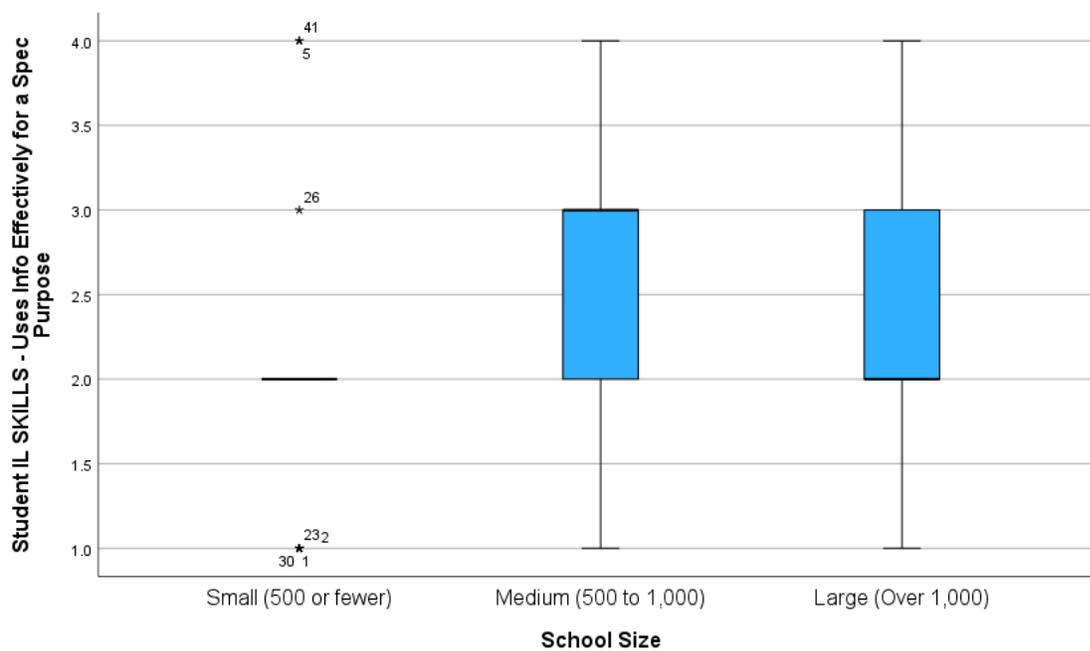
Figure G15

Box plot of Student IL SKILLS – Uses Info Ethically & Legally for School Size
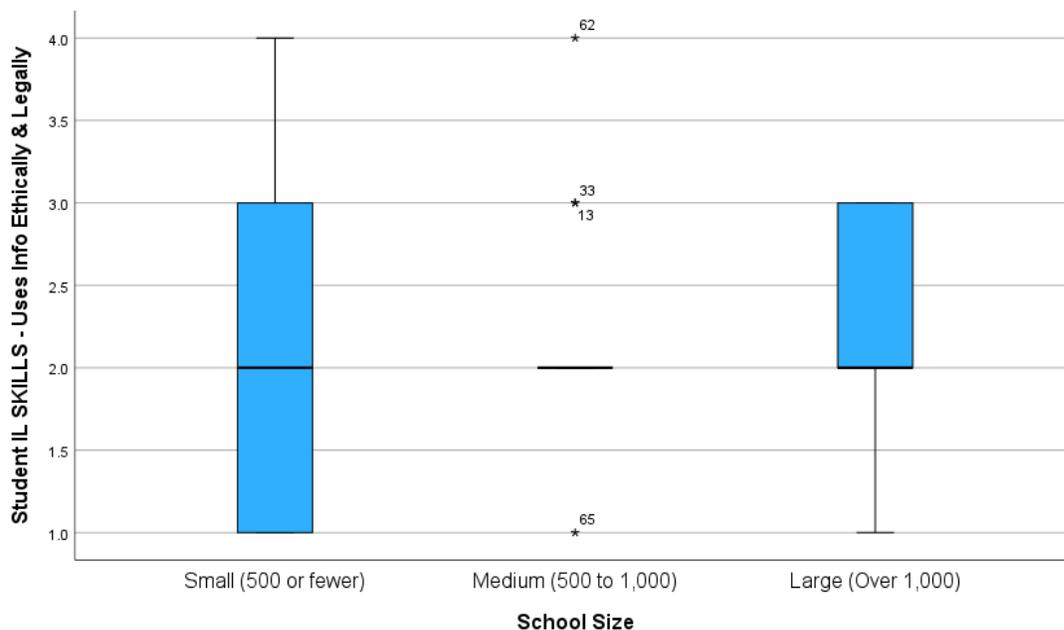
Figure G16

Box plot of Student IL SKILLS – IDs and Addresses Info Need for Librarian Certification
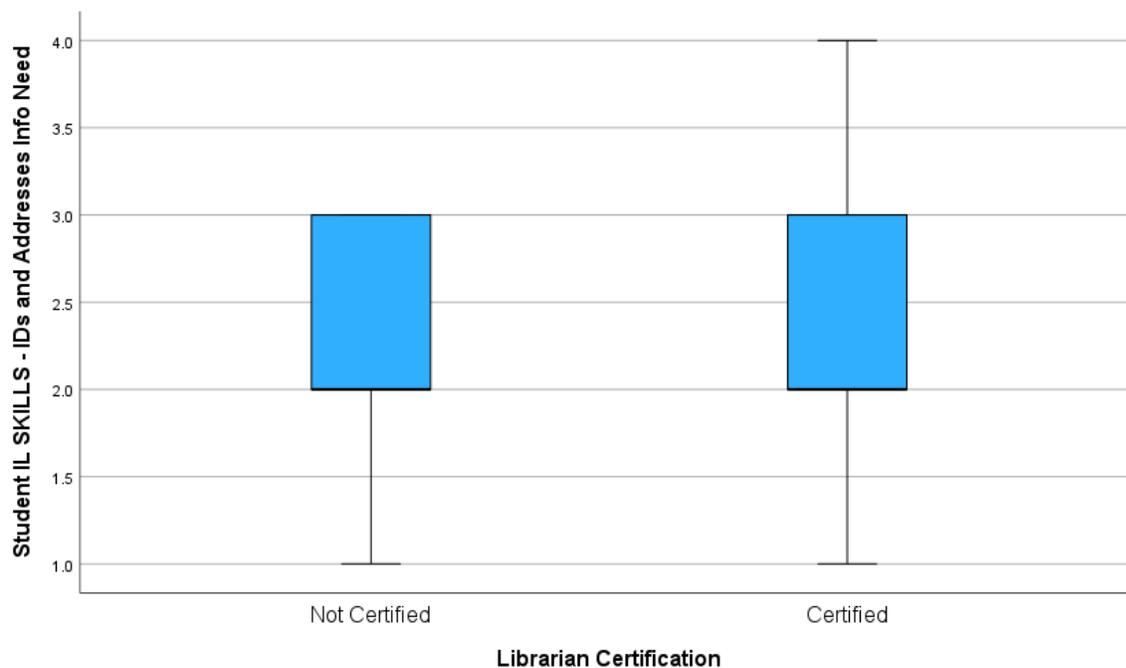
Figure G17

Box plot of Student IL SKILLS – Accesses Info Effectively & Efficiently for Librarian Certification
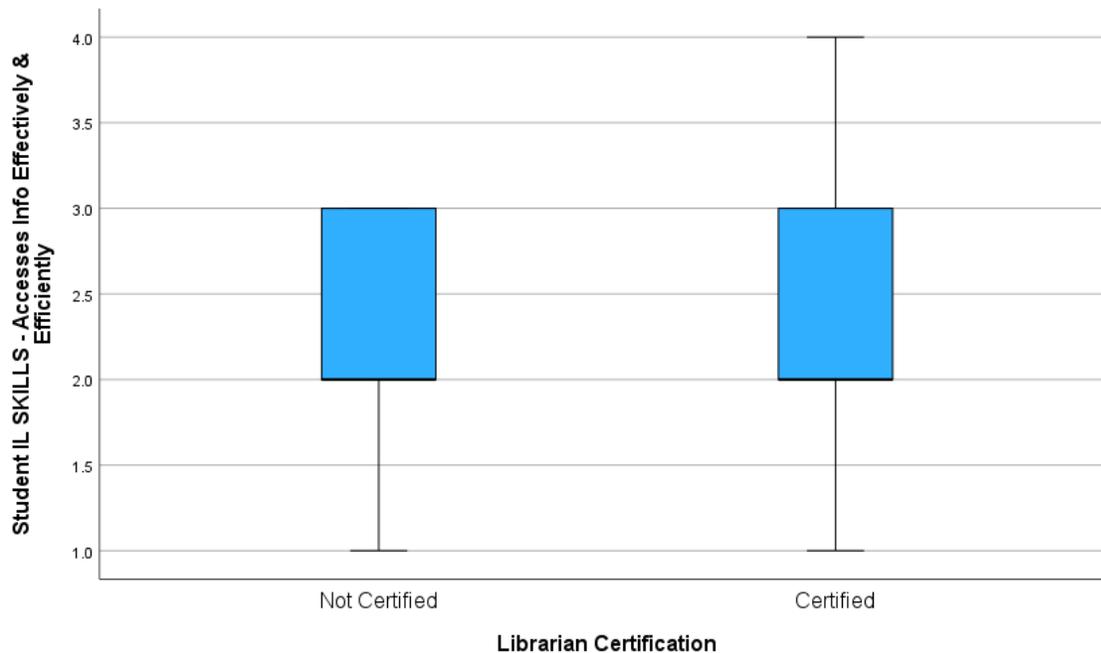
Figure G18

Box plot of Student IL SKILLS – Evals and Thinks Critically About Info for Librarian Certification
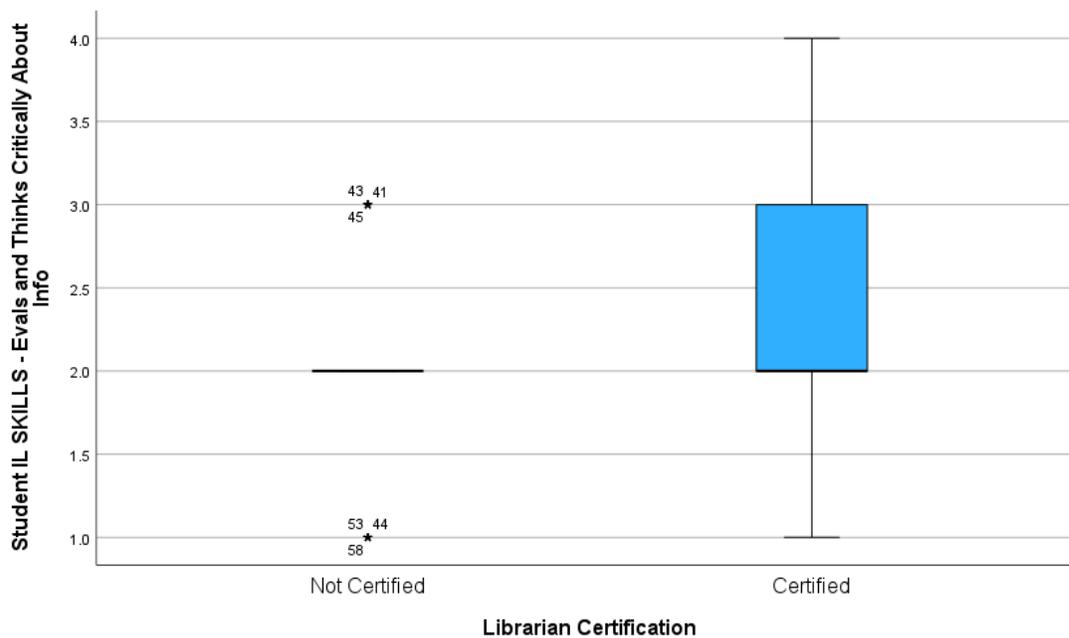
Figure G19

Box plot of Student IL SKILLS – Uses Info Effectively for a Spec Purpose for Librarian Certification
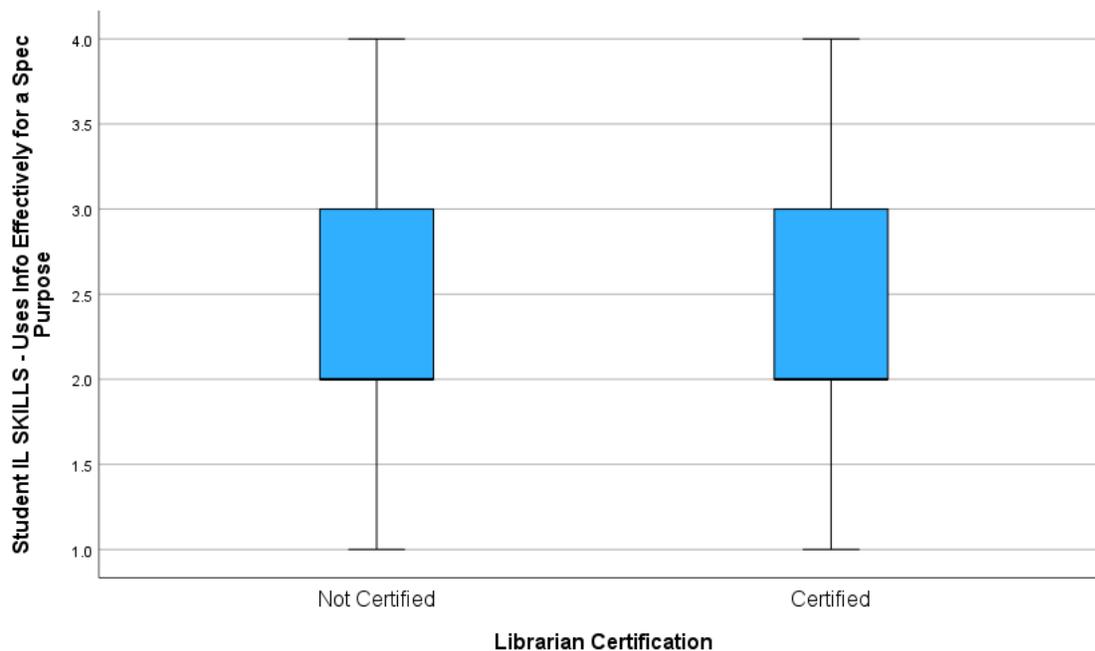
Figure G20

Box plot of Student IL SKILLS – Uses Info Ethically & Legally for Librarian Certification
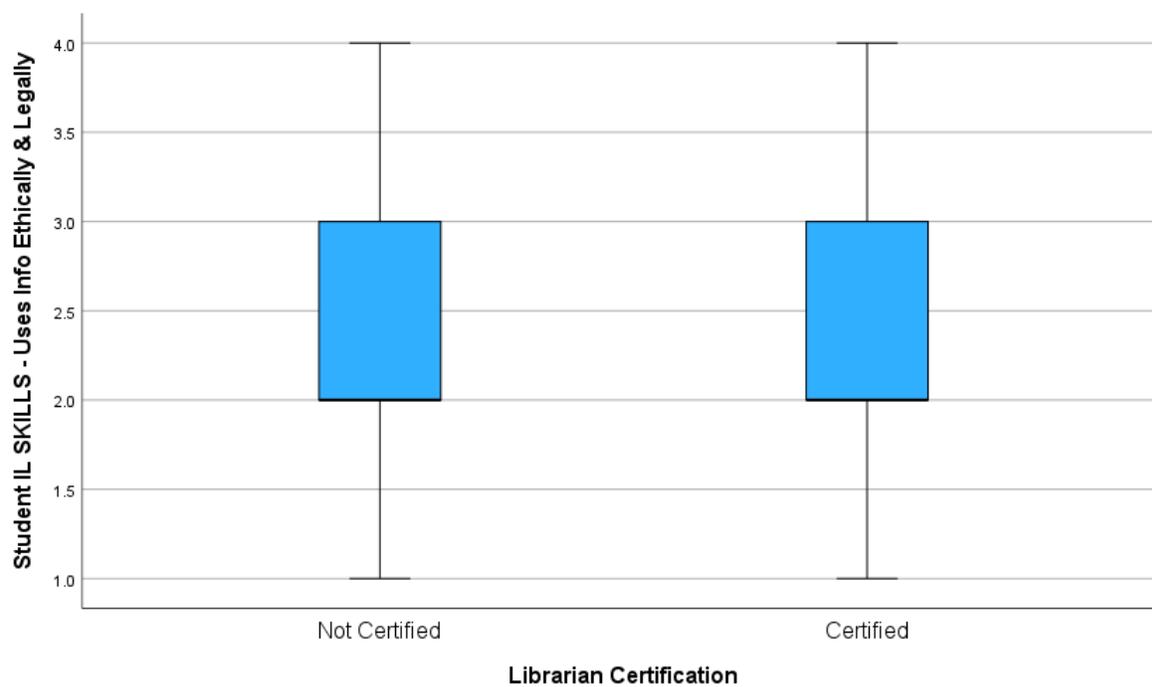
Figure G21

Box plot of TLC_Coor_CompScore for Primary TD 3 Groups
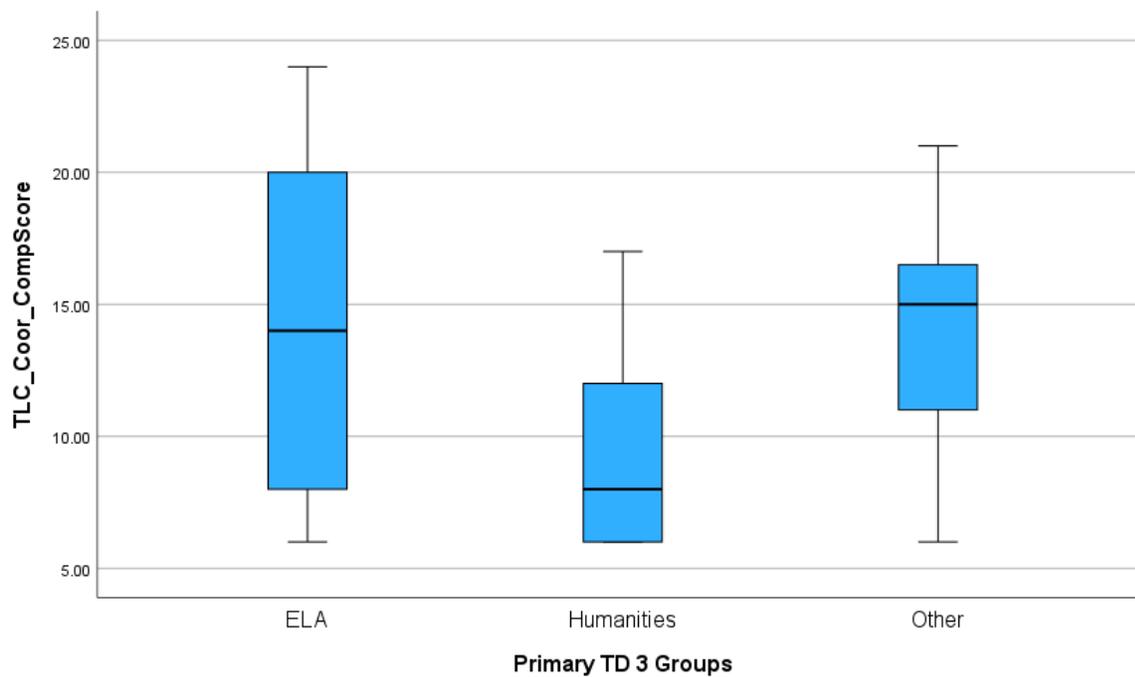
Figure G22

Box plot of TLC_Coop_CompScore for Primary TD 3 Groups
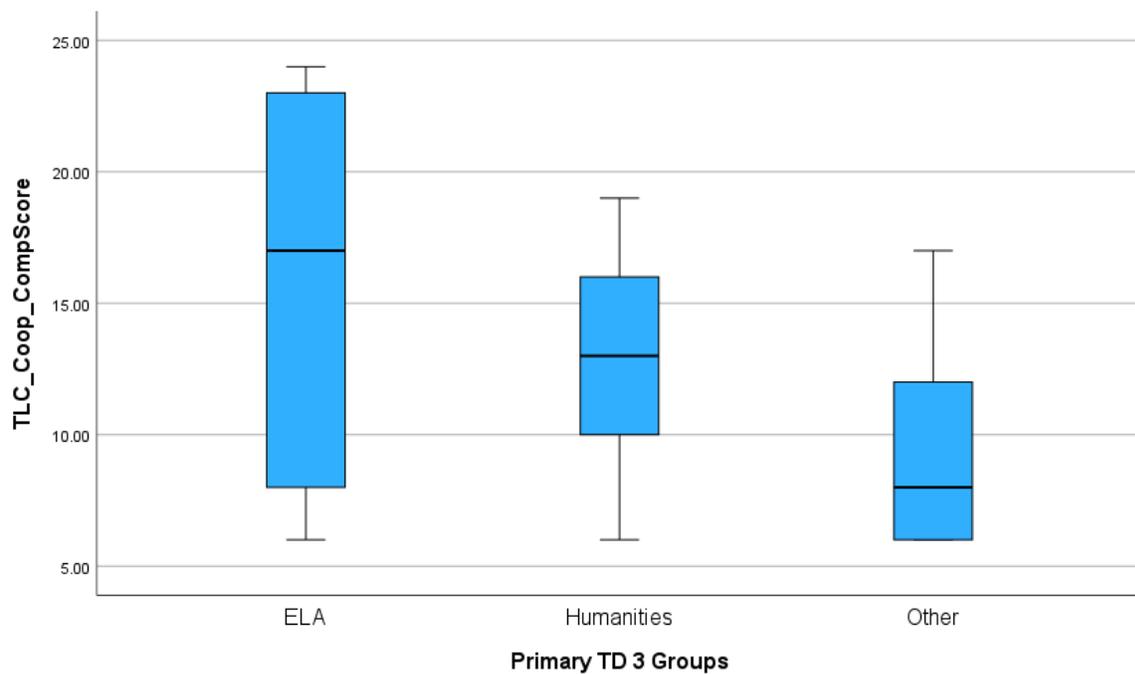
Figure G23

Box plot of TLC_IntInst_CompScore for Primary TD 3 Groups
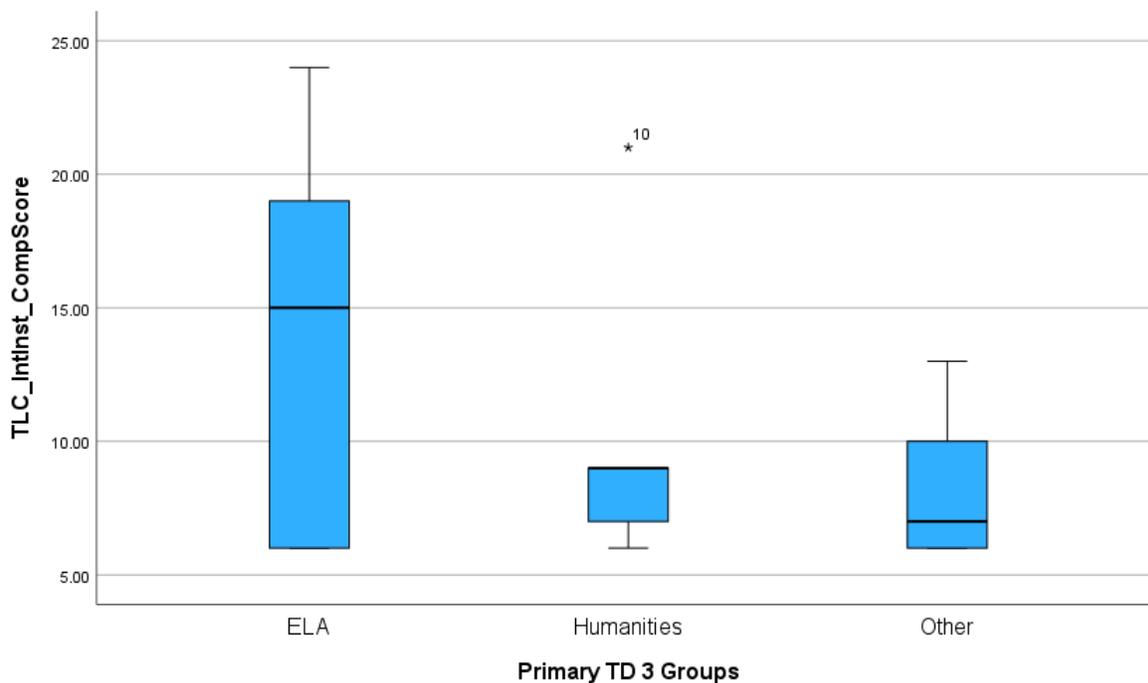
Figure G24

Box plot of TLC_IntCurr_CompScore for Primary TD 3 Groups
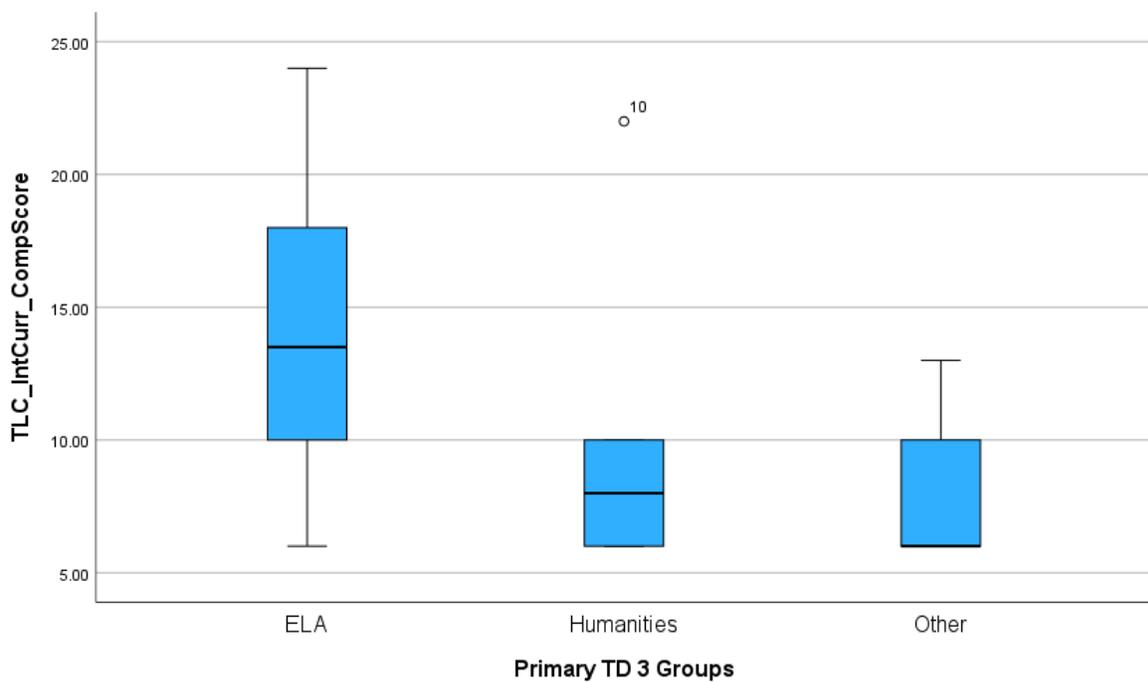
Figure G25

Box plot of TLC_Coor_CompScore for School Classification
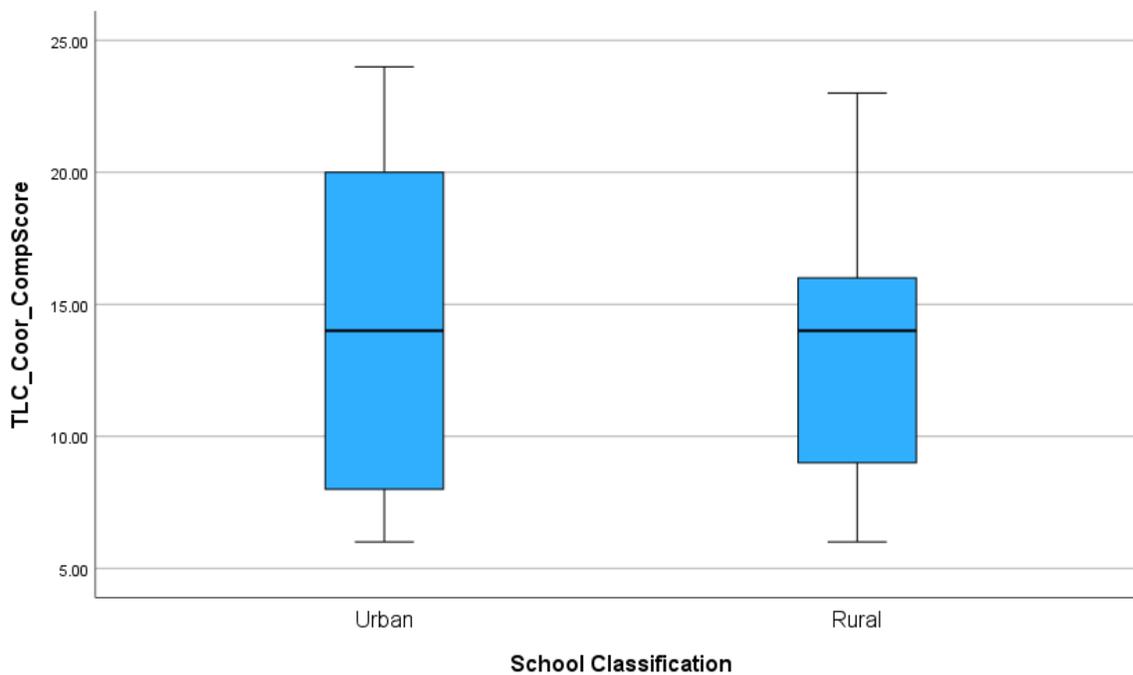
Figure G26

Box plot of TLC_Coop_CompScore for School Classification
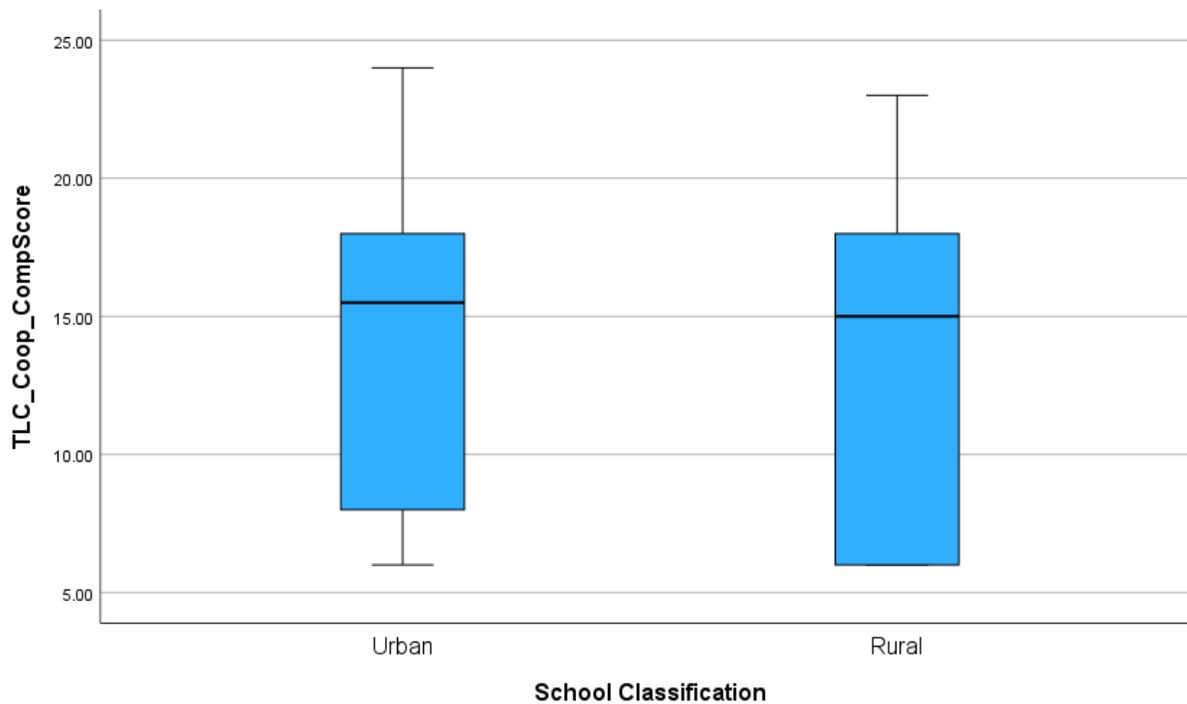
Figure G27

Box plot of TLC_IntInst_CompScore for School Classification
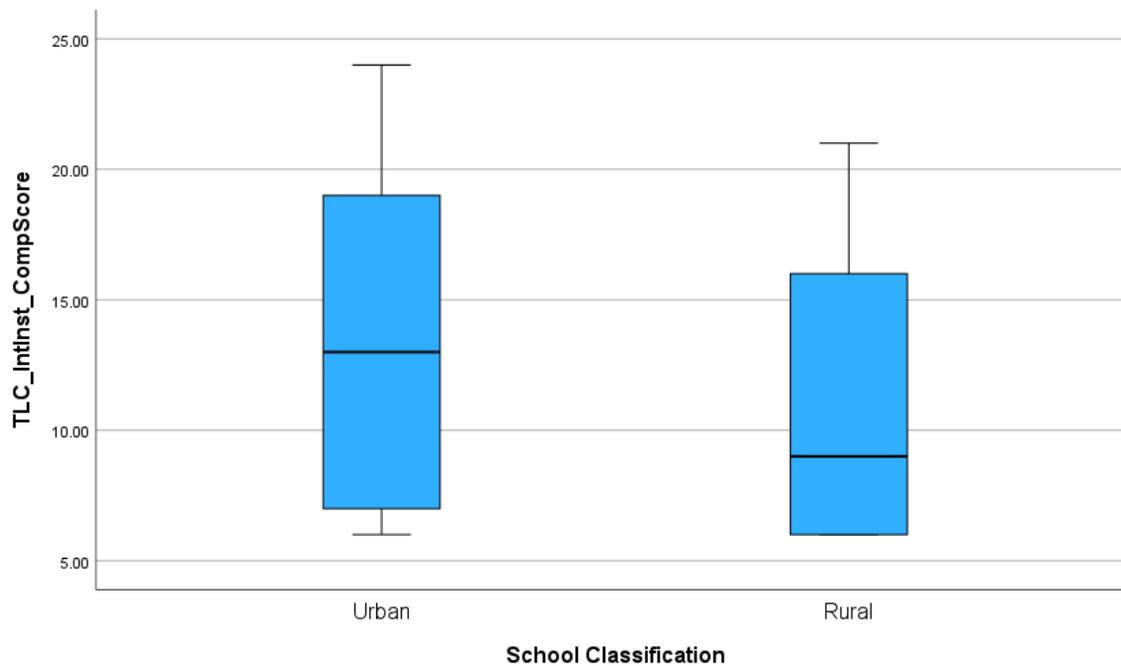
Figure G28

Box plot of TLC_IntCurr_CompScore for School Classification
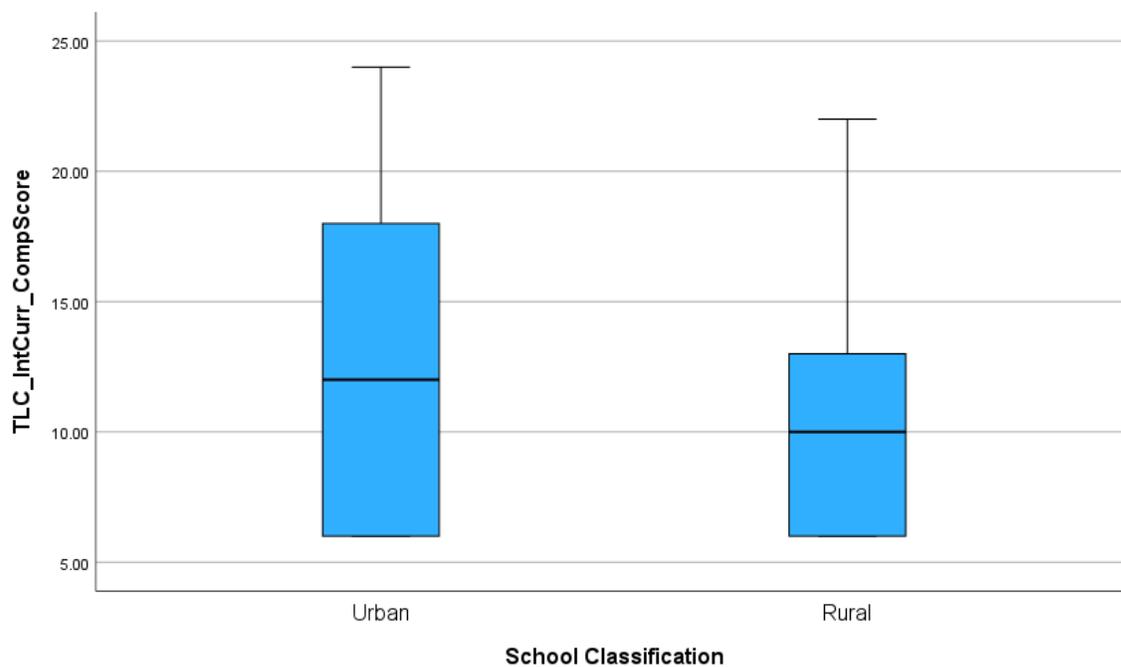
Figure G29

Box plot of TLC_Coor_CompScore for School Size 2 Groups
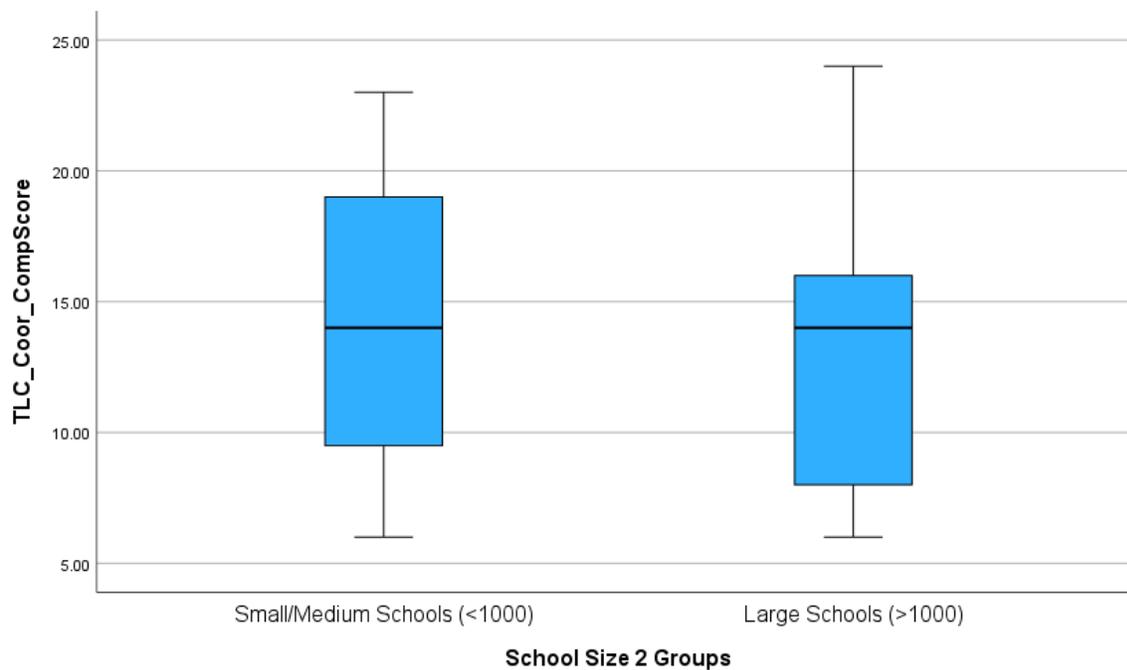
Figure G30

Box plot of TLC_Coop_CompScore for School Size 2 Groups
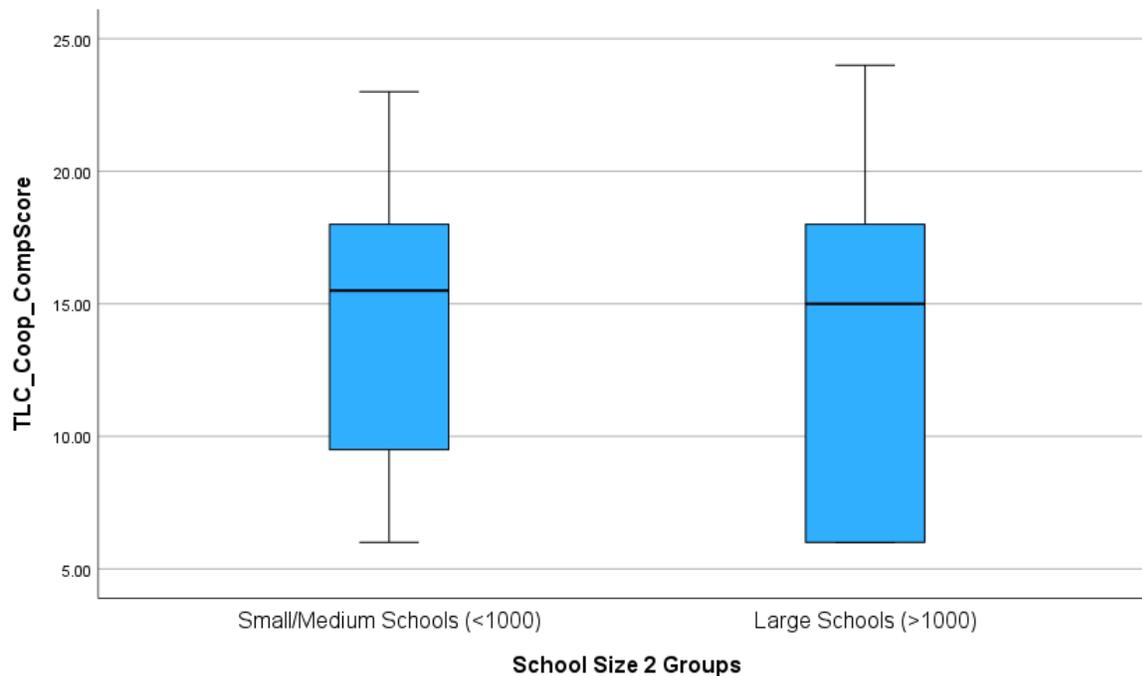
Figure G31

Box plot of TLC_IntInst_CompScore for School Size 2 Groups
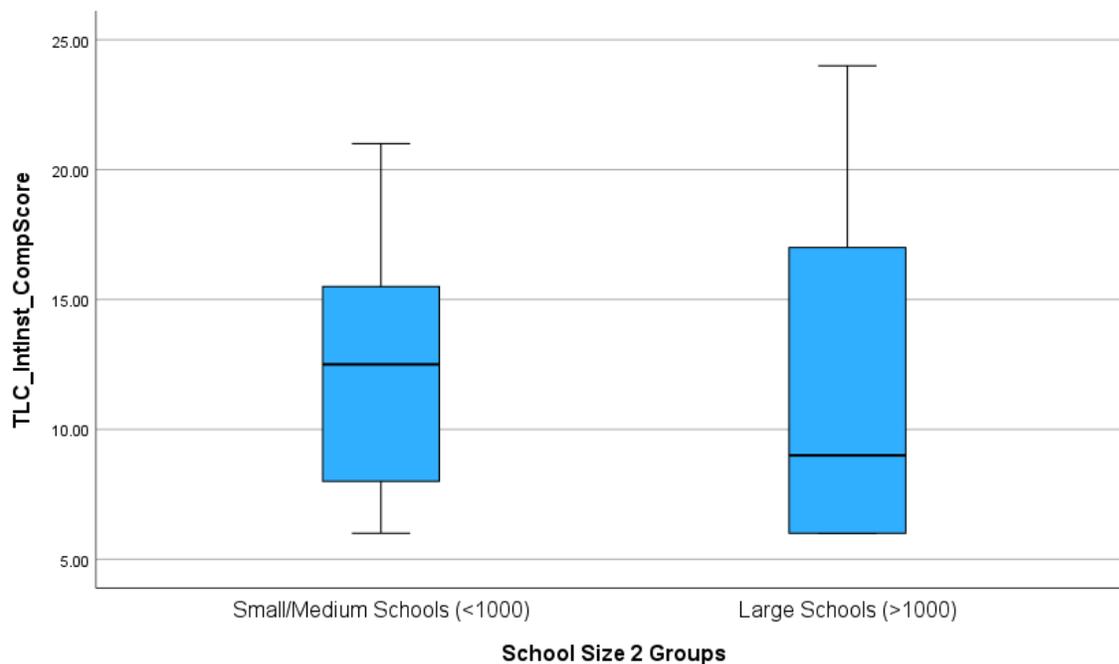
Figure G32

Box plot of TLC_IntCurr_CompScore for School Size 2 Groups
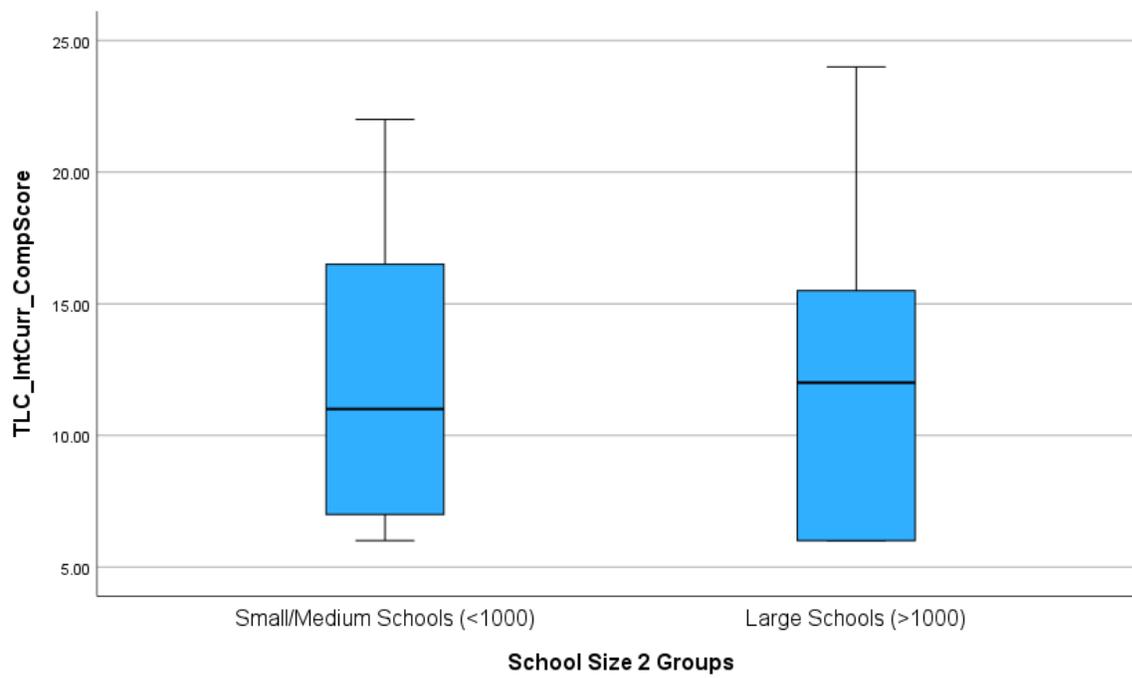
Figure G33

Box plot of TLC_Coor_CompScore for Librarian Certification
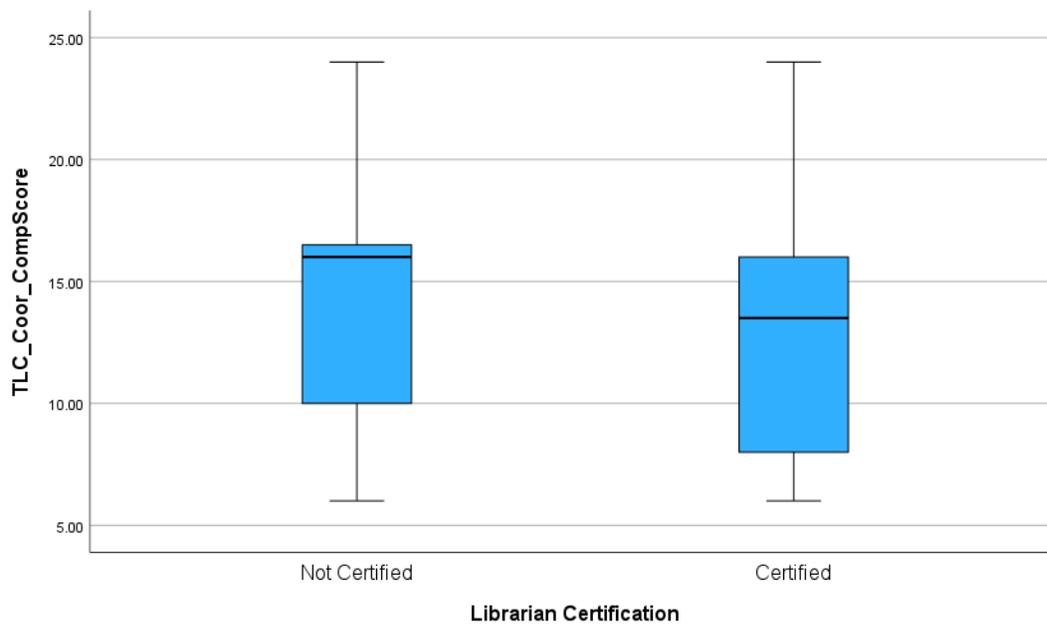
Figure G34

Box plot of TLC_Coop_CompScore for Librarian Certification
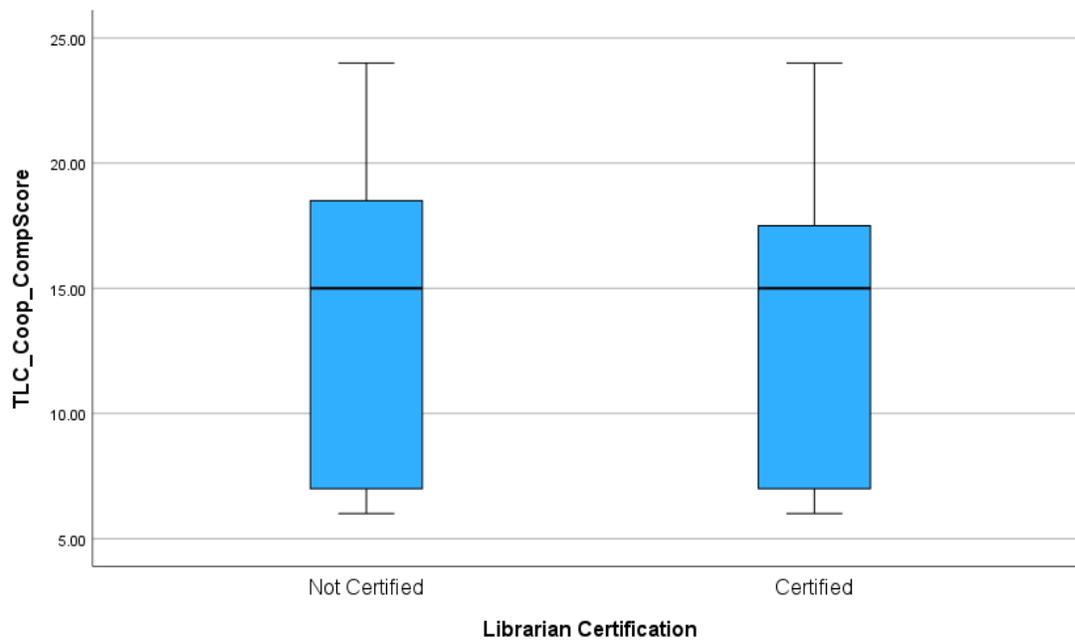
Figure G35

Box plot of TLC_IntInst_CompScore for Librarian Certification
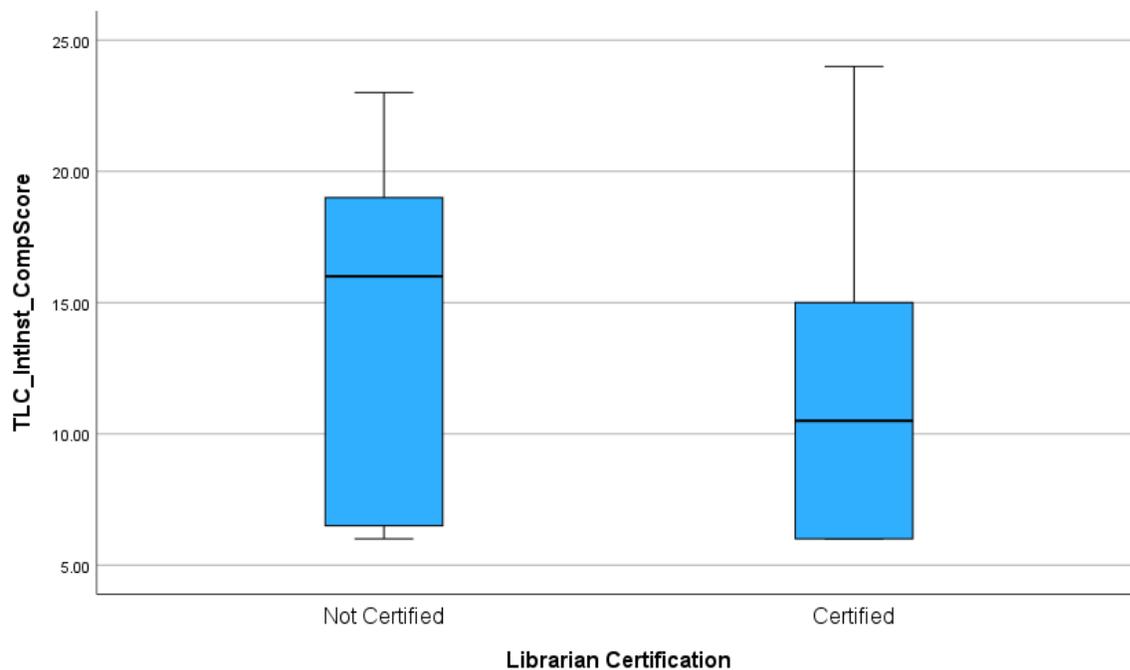
Figure G36

Box plot of TLC_IntCurr_CompScore for Librarian Certification
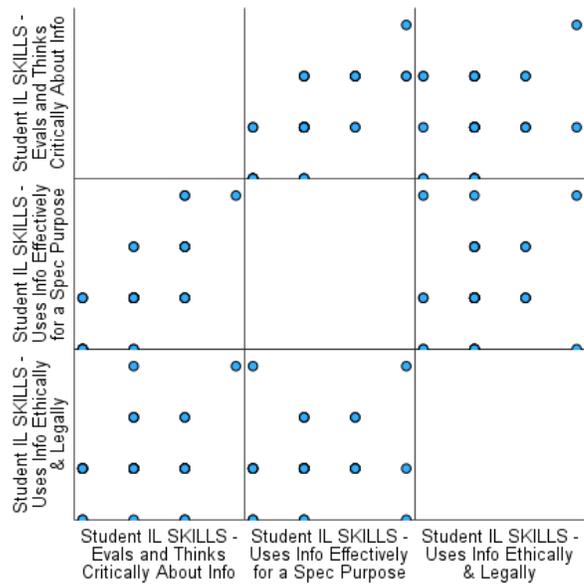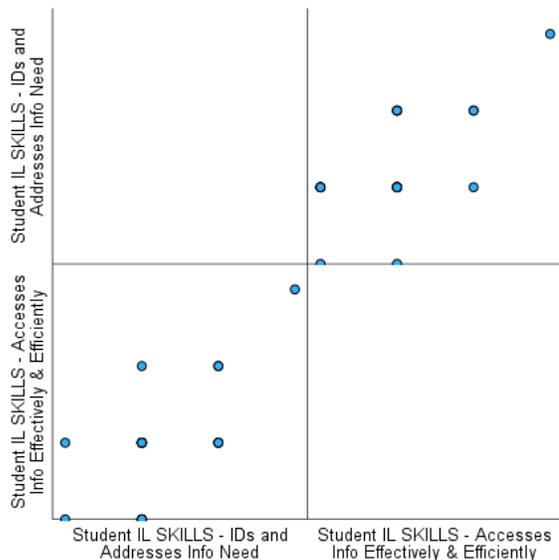
Appendix H: Scatterplots

Figure H1

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for Primary TD 4 Groups: ELA

Figure H2

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for Primary TD 4 Groups: Humanities
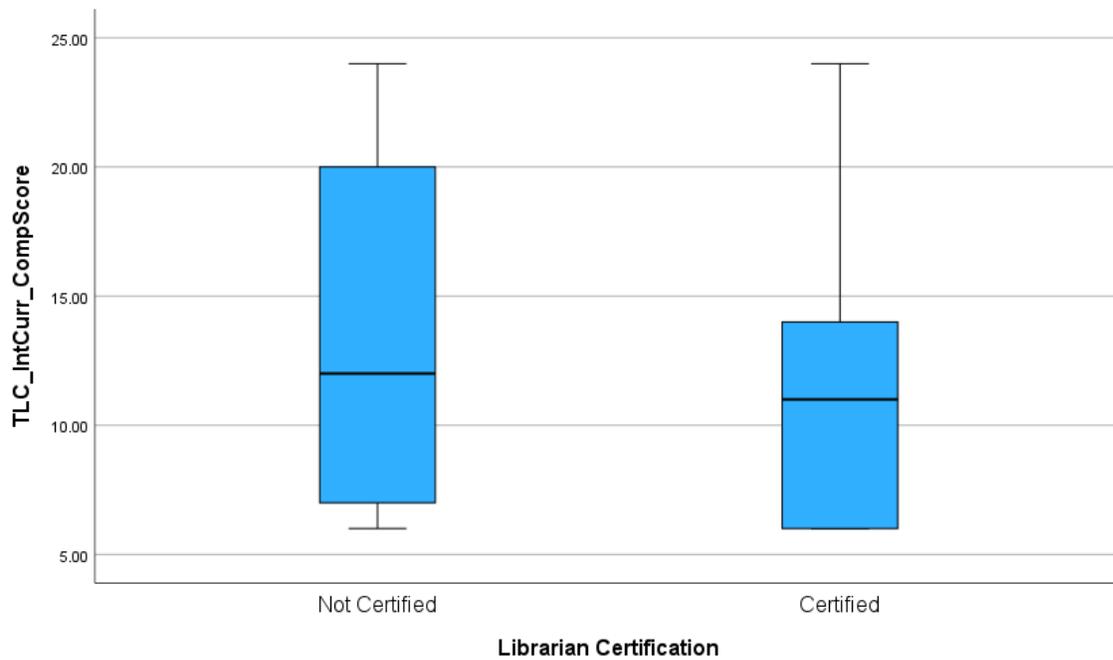
Figure H3

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for Primary TD 4 Groups: Math/Science
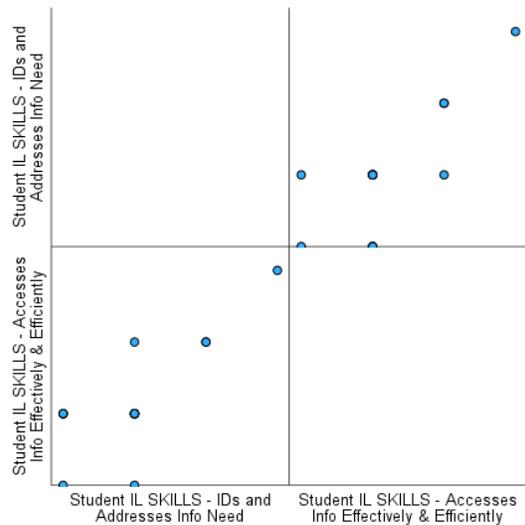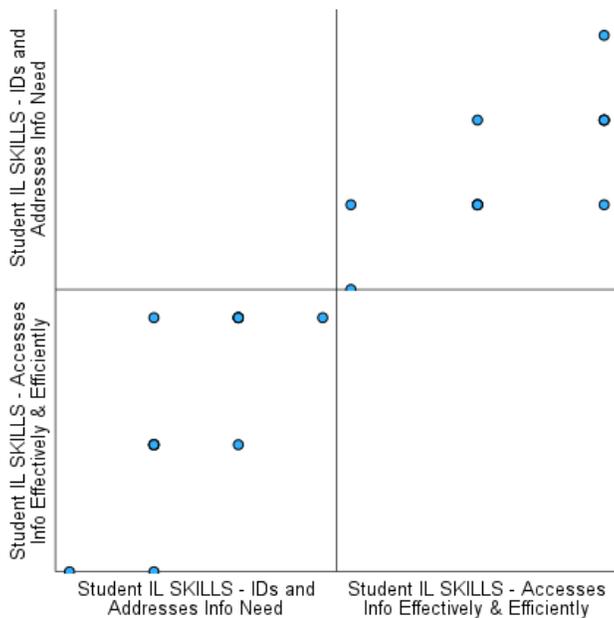

Figure H4

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for Primary TD 4 Groups: Math/Science

Figure H5

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for Primary TD 4 Groups: ELA
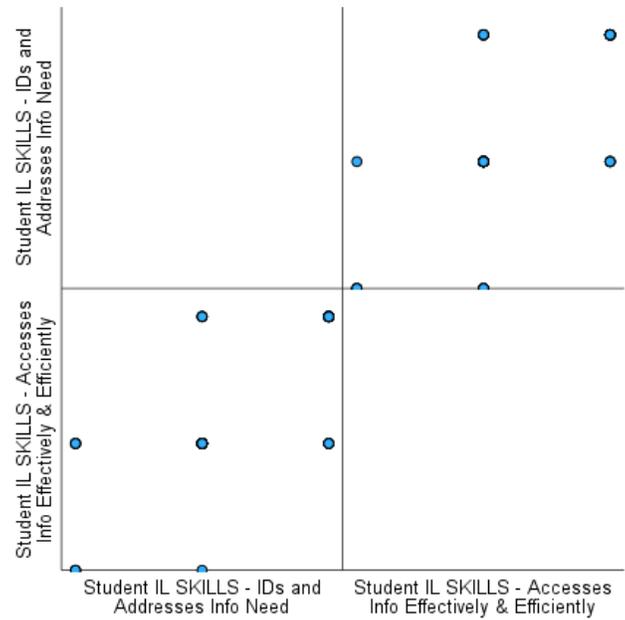

Figure H6

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for Primary TD 4 Groups: Humanities
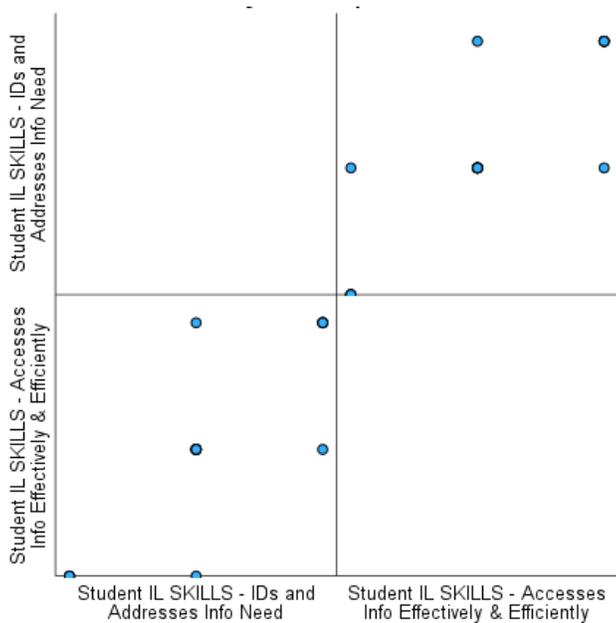
Figure H7

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for Primary TD 4 Groups: Math/Science
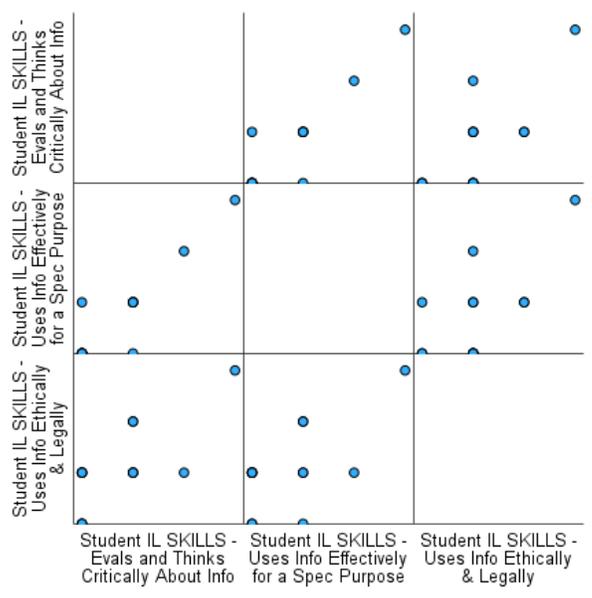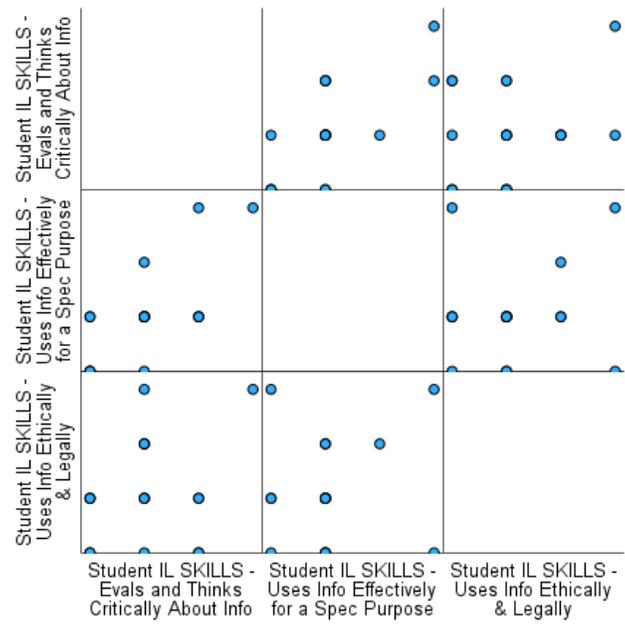

Figure H8

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for Primary TD 4 Groups: Other
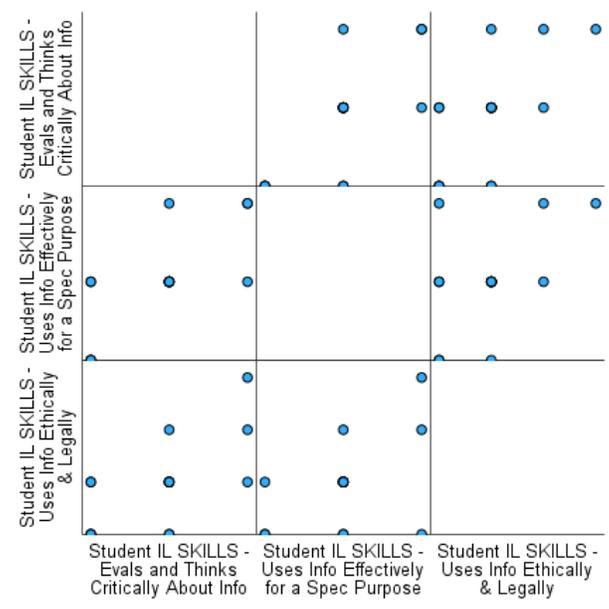
Figure H9

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for School Classification: Urban
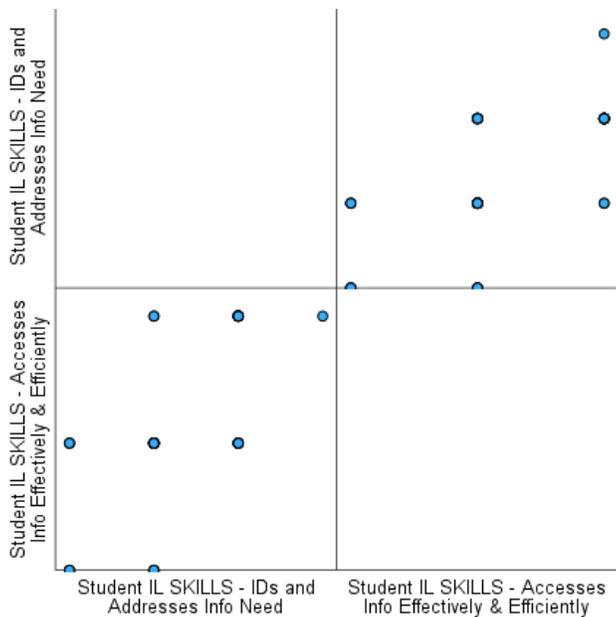
Figure H10

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for School Classification: Rural
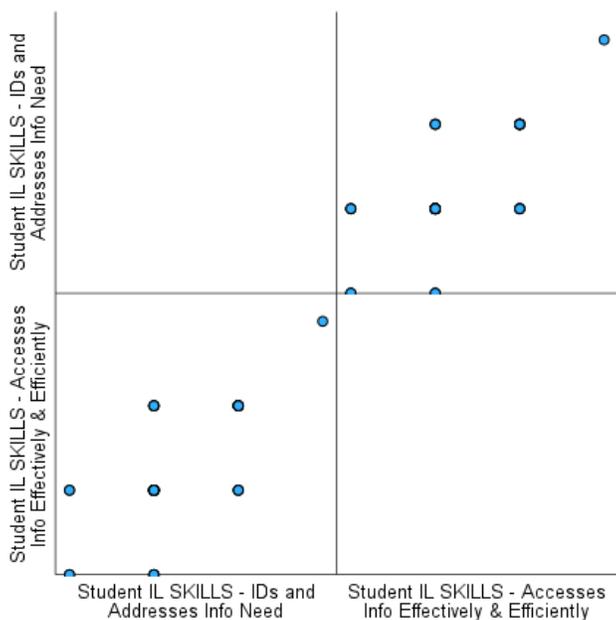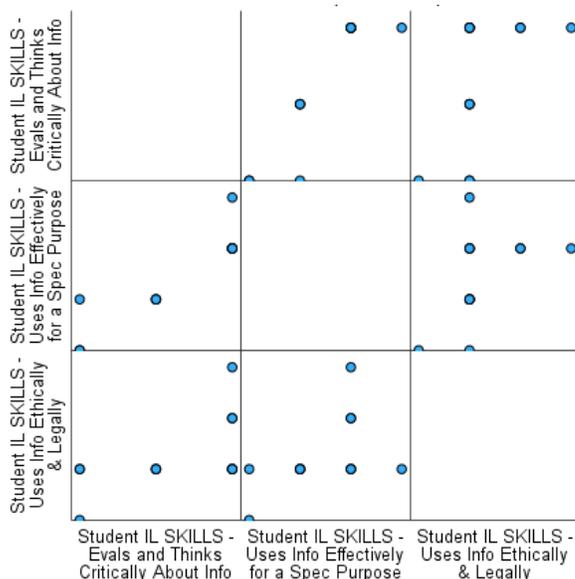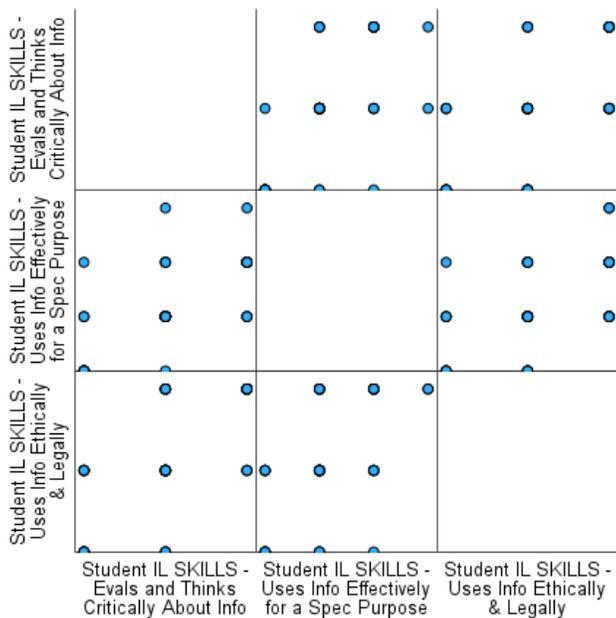
Figure H11

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for School Classification: Urban
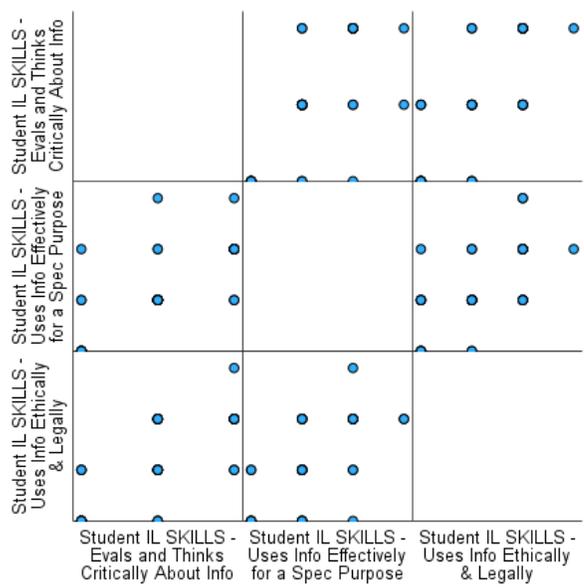
Figure H12

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for School Classification: Rural
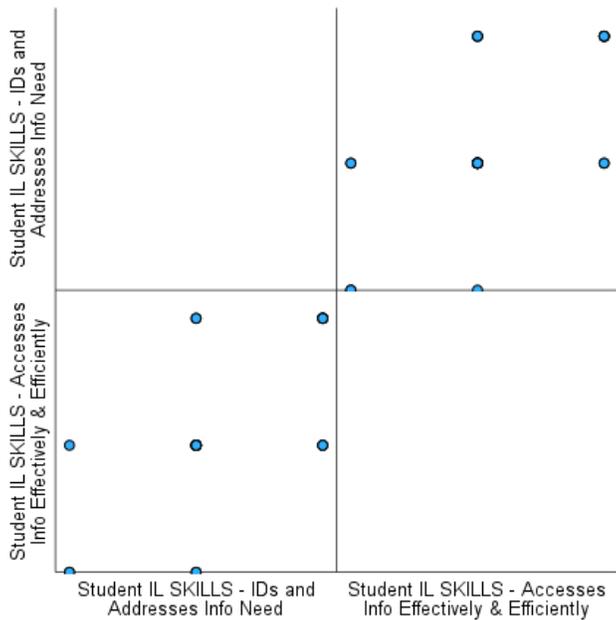
Figure H13

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for School Size: Small (500 or fewer)

Figure H14

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for School Size: Medium (500 to 1,000)

Figure H15

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for School Size: Large (Over 1,000)
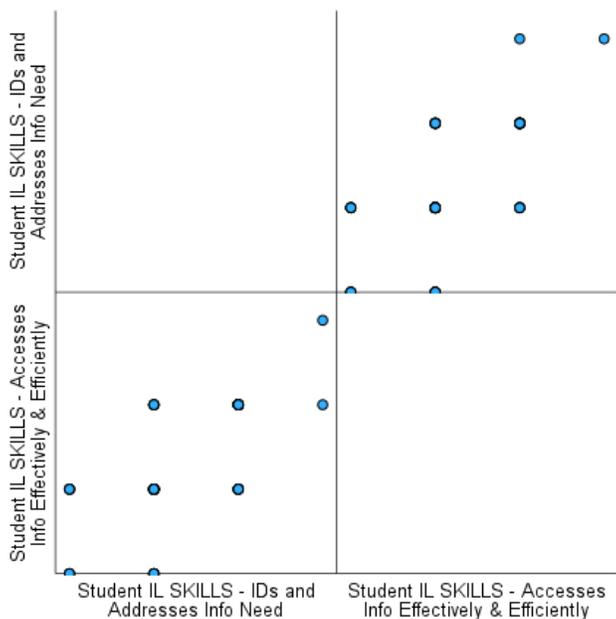

Figure H16

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for School Size: Small (500 or fewer)
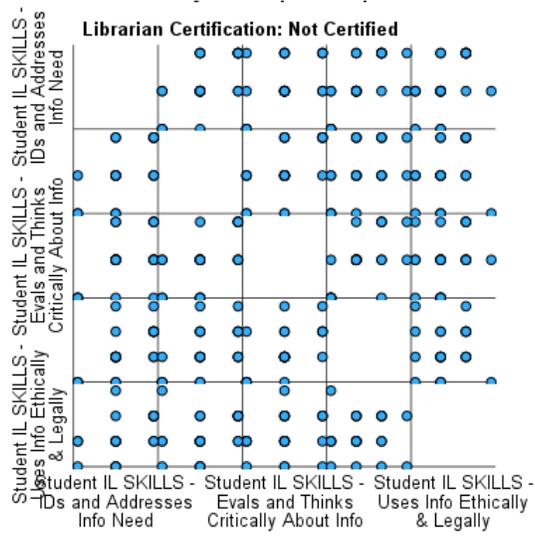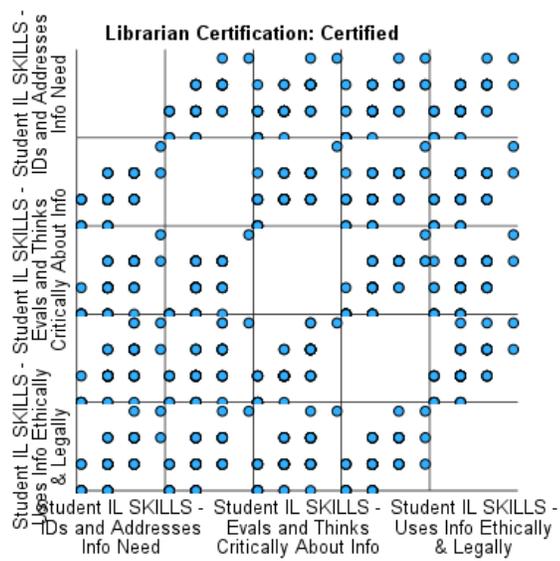
Figure H17

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for School Size: Medium (500 to 1,000)

Figure H18

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for School Size: Large (Over 1,000)

Figure H19

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for Librarian Credentials: Not Certified

Figure H20

Scatterplot matrix of Student IL SKILLS – IDs and Addresses Info Need, Student IL SKILLs – Accesses Info Effectively & Efficiently for Librarian Credentials: Certified

Figure H21

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for Librarian Certification: Not Certified

Figure H22

Scatterplot matrix of Student IL SKILLS – Evals and Thinks Critically About Info, Student IL SKILLs – Uses Info Effectively for a Spec Purpose, Student IL SKILLS – Uses Info Ethically & Legally for Librarian Certification: Not Certified