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Stakeholders as researchers: A multiple case study of using cooperative inquiry to develop and document the formative leadership experiences of new school library professionals

Marcia A. Mardis *, Nancy Everhart

School of Library and Information Studies, The Florida State University, P.O. Box 3062100, Tallahassee, FL 32306-2100, USA

A B S T R A C T

Cooperative inquiry, a form of qualitative research used in community building, has not often been applied in educational contexts. Through the lens of formative leadership theory, the researchers studied the abilities of three new school librarians trained in cooperative inquiry and leadership to engage in collaborative problem solving for technology-related school challenges. Due to internal and external factors, participants experienced various levels of success with their challengers, but cooperative inquiry proved to be a viable methodology to evaluate the outcomes of library education for school librarians' formative leadership.

1. Introduction

Technology integration is an increasingly crucial element of teaching and learning that requires school-based leadership in order to be consistent and relevant. Library and information studies (LIS) education has traditionally been at the forefront of embracing new technologies, but only in the last decade or so have LIS programs also focused on technology leadership, particularly in a school library context.

This research explored the technology leadership experiences of three participants in Florida State University's Project Leadership in Action (LIA), an Institute of Museum and Library Services (IMLS)-funded catalyst for leadership education. The intent of Project LIA was to follow graduates of two prior leadership initiatives, Project Leaders Educated to Make a Difference (LEAD) and Project 1-2-3 LEAD, into their first jobs as school librarians. Project LEAD was a master's in library and information science (MLIS) leadership curriculum developed for school librarians, with emphases on technology integration, instructional leadership, leadership in reading, and organizational leadership based on the tenets of the National Board for Professional Teaching Standards Certification in Library Media. Project 1-2-3 LEAD enabled a cohort of 30 outstanding teachers to complete a curriculum and engage in this curriculum and further leadership activities as part of earning an MLIS degree. Given the opportunities of these two leadership programs, the researchers undertook Project LIA to address a resulting central question: Did the graduates of these programs actually enact leadership roles when they became practicing school librarians?

A core component of Project LIA was not just to observe graduates as they entered school librarianship, but also to arm them with skills and strategies to apply the leadership skills they had gained in their educations and field experiences. A key leadership strategy the researchers imparted to the participants was cooperative inquiry (CI), an action based methodology that includes leadership development as part of its process.

CI aims to engage and empower practitioners as they partner with researchers in documenting, interpreting, and disseminating insights from their own experiences (Heron, 1996)—clearly an appropriate method to link leadership education to leadership practice. Although it is widely used in community planning and nonprofit programming, to date, it does not appear that CI has been used in a library setting. Compelled by the clear fit between problem and approach, the researchers took the opportunity to use Project LIA as a context in which to test this research methodology with new school librarians.

2. Problem statement

The potential exists for school librarians to assume leadership roles at a time when effective use of technology for teaching and learning is crucial, yet little is known about the effective means by which school librarians can assert a leading, yet collaborative, position. Considering the possibilities and challenges inherent in technology integration and leadership development, it is important to explore ways in which school librarians assert, enact, and describe their own leadership development. The lens of formative leadership theory to view the use of the CI process in school librarian-led technology integration can lend insight into the education, skills, and dispositions needed to be successful as library-based leaders in schools and other educational organizations.

* Corresponding author.
E-mail address: mmardis@fsu.edu (M.A. Mardis).

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The exploration of the relationship between participants' educations and actions was guided by the following research questions, which center on CI as a leadership development and demonstration skill:

RQ1. To what extent are new school librarians able to exercise formative leadership to organize and facilitate CI groups in their schools?
RQ2. To what extent are participants able to apply formative leadership to CI processes?
RQ3. To what extent does the exercise of formative leadership and conduct of CI relate to the success of the participants' experiences?

3. Literature review

Today's information and technology-rich environments require schools to be true learning organizations where all students have the opportunity to engage in challenging and interesting academic work as a result of instructional strategies and cutting-edge technologies. Leaders of these organizations have to create learning opportunities that enable teachers and students to participate in anticipating and engaging in productive change.

3.1. School librarians as leaders

In order to affect learning, schools cannot simply acquire technology—they must integrate it into teaching and learning. Without professional development and ongoing support, teachers, even in schools and districts committed to integration, struggle to effectively integrate technology (Hixon & Buckenmeyer, 2009). School librarians often perform these supporting roles (Everhart & Mardis, 2010). Many studies of the relationship between school library characteristics and student reading achievement (synthesized in Scholastic, 2008), reported that in schools in which the school librarian had an integral role in technology purchasing decisions, policymaking, and delivery of professional development, school librarians also worked closely with teachers and student reading abilities were strong. Other studies (Achterman, 2008; Mardis, 2007b) reported school librarians who acted as technology leaders had an impact on academic success in many other curriculum areas, including science and mathematics.

School librarians have a professional imperative to teach students new literacies that allow them to use technology to create and communicate new learning as part of gaining 21st century skills (American Association of School Librarians [AASL], 2007, 2009). Students need these new literacies to be ethical, legal, and safe participants in digital culture. Now, "school librarians are in a prime position to make significant and meaningful contributions toward the integration of 21st century literacy skills" (Hanson-Baldauf & Hughes-Hassell, 2009, p. 4).

Researchers have concurred that school librarians' knowledge of pedagogy, curriculum, information resources, and cooperative work makes them valuable leadership assets (Asselin, 2005; Vansickle, 2000). As technology has become interwoven with many components of contemporary leadership, school librarians' leadership values naturally extend to technology. To this end, AASL established a vision for technology-infused student learning and first described the technology leadership role in the professional guidelines detailed in *Empowering Learners*: *Guidelines for School Library Programs* (AASL, 2009). These guidelines delineated multiple opportunities for school librarians to act as leaders and collaborators by modeling and promoting the use of technology for learning.

However, the leadership role of the school librarian in technology integration has not been universally accepted by administrators, teachers, and, often, by school librarians themselves (Asselin, 2005; Everhart & Dresang, 2007). Although AASL, the national professional organization, has suggested that school librarians should function as technology leaders, due to a wide range of external, internal, and personal factors, few seem to enact this leadership role (Everhart, Mardis, & Johnston, 2011). While a disparity exists between leadership directives and leadership exercise, research is just starting to be conducted into levers for leadership enactment. For example, a study of the aforementioned Project LEAD cohort (Smith, 2011, 2012) revealed that school librarians felt most confident to lead technology integration when they had the benefit of leadership training, mentoring, professional development, and administrative support. But Smith (2011, 2012) also found that for pre-service school librarians in leadership education, the mentoring experience must foster particular qualities, such as risk-taking, to result in leadership enactment.

3.2. Facilitating conditions of school librarian leadership

To date, school leadership literature has been dominated by theories and research designs that focus on the power of an individual to lead (Muijs & Harris, 2003). However, studies of effective school leadership have often concluded that successful school leadership is distributed, collective, and empowering (Adams & Jean-Marie, 2011; DiPaola & Tschannen-Moran, 2001; Leithwood, Riedlinger, Bauer, & Jantzi, 2003). Therefore, even when school librarians are capable of assuming technology leadership roles, the school environment must be conducive to their leadership.

3.2.1. Principal support

Ash and Persall (Ash & Persall, 2000) positioned the school principal as the "chief learning officer" (p.15) who influences and manages every aspect of professional conduct within the school. Principals articulate the vision for the school and provide a role for each member of the school community in supporting that vision (Bottoms & Schmidt-Davis, 2010). Maxfield and Flumerfelt (2009) extended this notion by reporting research that concluded that principals set expectations for collaboration that are followed by everyone else in the school. And although principals often set expectations for their school librarians based on their personal experiences with librarians (Hartzell, 2002), Anderson and Dexter (2005) emphasized that school administrators must be both supportive and knowledgeable about technology initiatives and consider all of the school community in technology implementation efforts.

3.2.2. Teacher support

While the principal sets the overarching tone for leadership in the entire school community, classroom teachers' interest in and willingness to engage in cooperative teaching and instructional collaboration are essential facilitating conditions of school librarian leadership (Hoffman & Mardis, 2008; Mardis, 2007c; Montiel-Overall, 2005a, 2005b). These collaborative relationships allow for a continuum of learning and identification of interdisciplinary connections that allow children to experience connections within the curriculum and across grade levels (Slygh, 2000; Zmuda & Harada, 2008); collaboration also facilitates more meaningful integration of technology (Johnston, 2012; Saldivar, 2011).

3.2.3. Structural support

Even when principal and teachers are supportive of school librarians' contributions to technology and instruction, other conditions are essential for this work to be exercised as leadership. Results of two nationwide surveys led by Everhart and Mardis (2010, 2011) suggested that the support of school community members such as district-level technology administration is important for school librarians to be identified as leaders, be empowered to make day-to-day decisions, and have input on technology policies that affect teaching and learning in their schools. The survey results also affirmed research that has indicated that non-personnel issues like technology and Internet use policies (Willard, 2003), technology expenditures (Warschauer & Matuchniak, 2010), and availability of high-speed Internet (Schofield & Davidson, 2002) also factored into how well school librarians were able to assert a technology leadership role in their schools.

3.3. Cooperative inquiry as a leadership method and research methodology

As collaborative environments based on the exchange of knowledge and social interaction, schools tend to be environments that lend themselves well to investigative processes that involve participation and collaboration. CI is one such process. CI is a form of participatory research designed for institutions responsible with social transformation, like schools. In a CI, a group initiator formally invites individuals to commit to investigate and remedy a phenomenon or problem in their shared environment. Group members are volunteers, but volunteers who agree to attentively attend the entirety of each meeting, engage in note-taking and reflection, and participate in group discussions. Then, the group initiator, or facilitator, leads the CI members through specific process to devise, implement, and reflect on strategies to address the identified problem. The group facilitator leads and guides the problem identification and resolution activities and also ensures that complete notes are kept, participation obligations are met, action/reflection cycles are completed, and group interaction is constructive.

As an emergent process that contributes to the acquisition and creation of knowledge grounded in participatory research practice, CI can deepen the leadership potential of all participants, and strengthen trust and collaborative relationships among group members (Oates, 2002). CI is designed to bridge the perspectives and approaches of diverse stakeholders in a situation (Ospina et al., 2004).

But CI is more than an action/reflection cycle, such as action research. The intent of CI is to foster empowerment through shared decision-making. CI fosters mutual respect among its co-investigators because all participants are involved in research decisions; the group leader acts as a coordinator, not a director. The opinions and reactions of all participants are equally important. In CI, everyone relies on one another to complete the research process. Action and reflection cycles aid study participants in not only identifying viable solutions to a problem, but also in understanding personal biases and how various perspectives affect the description of a problem, the construction of a solution, and the understanding of research outcomes. CI adds a humanistic quality to scientific inquiry by seeking the opinions of and creating empathetic connections between stakeholders who are truly experiencing the research phenomena. (Kovari et al., 2004).

In CI, group members, also called co-investigators, build trusting rapport by openly sharing how they react to particular situations and sensitive topics. While some research methods allow researchers to disregard affective interpersonal experiences as secondary to the investigation and too subjective to feed into result analysis, according to Reason and Heron (2004) CI participants develop a "critical subjectivity" in which they "develop their attention so they can look at themselves – their way of being, their intuitions and imaginings, their beliefs and actions – critically and in this way improve the quality of their claims to four-fold knowing" (p. 4). The development of critical subjectivity is an additional strength of CI. With critical subjectivity, co-investigators develop a sense for the boundary between objectivity and their personal experiences. In order to make sense of the solution or the attempted remedy to a problem, co-investigators are able to use their personal knowledge and the group's experiences to gain an authentic perspective on objective data (Alcántara, 2009; Lawson, 2008).

In this way, CI is a method and a methodology; that is, group members share the philosophy of the CI approach and work together to develop strategies for implementing solutions, gathering and reviewing data, and making adjustments to solutions. Alcántara (2009) emphasized that the success of each phase of the CI is distinguished by the extent to which is the group environment is comfortable and positive; relationships are strong and open; trust is present and universal within the group; respect is given and received between group members; and group facilitation is strong, clear, and consistent.

Because school librarian leadership, especially concerning technology, is largely aspirational due to its absence from research literature, a perspective and method like CI may have great potential to reveal the aspects of leadership school librarians can use to enact leadership roles.

3.3.1. Validity and reliability of the method

Validity is established in several ways in CI studies. Face validity is established because the natural process of people communicating and expressing their opinions is recorded. Content validity is established because the people who participate are the experts in their own situations. Only they can express exactly how they feel about a situation or activity in which they have participated (Ospina et al., 2004). Furthermore, the use of cycles is a benefit in CI because the cycles increase validity. During the cycles, the co-researchers participate in action and reflection. This increases validity because each time a topic is examined the results are either confirmed or revisited until all CI group participants are satisfied with the results, as Fig. 1 illustrates.

As Fig. 1 shows, ongoing cycles of reflection, action, and consensus ensure reliability. The CI process requires all participants to engage fully in each group meeting, attend all meetings, take notes, and agree upon minutes of past meetings. These processes ensure that all participants share the same body of knowledge about the situation under examination and also ensure information is not inadvertently excluded or misinterpreted by any group members.

4. Theoretical framework

Formative leadership theory (Ash & Persall, 2004) was especially well-suited to describe the participants' leadership experiences in their first school library positions. Formative leadership theory is based on the idea that school leadership is not reserved only for administrators and that all members of the school community have the potential to enhance student learning and educative practices (Avolio & Gibbons, 1988). As educational organizations shift to a greater recognition that schools reflect unique cultural aspects and a range of important educating roles (Maxfield & Flumerfelt, 2009), the idea that leadership can develop in response to opportunity and experience is especially appropriate for examining how new entrants to the school community establish leadership positions.

According to Ash and Persall (2000), nascent leaders may not be fully be aware of how their leadership capabilities are developing until they act and reflect on actual leadership events. To be effective instructional leaders, all members of the school community must lead, expect to be effectively led, and facilitate leadership skills in others. The resulting climate is called formative leadership. According to Ash and Persall (2000), the key principles underlying formative leadership theory are team learning, positive dialog, shared decision-making, trustful disposition, creative problem solving, and a common set of values and goals for the organization. With these principles in mind, formative leadership theory offered the researchers a theoretical framework that could accommodate school librarians' leadership roles in instruction, collaboration, school-wide resource provision and support, and administration (AASL, 2009).

5. Method

This study sought to explore the experiences of new school librarian participants who had been educated to assert leadership roles. Participants were prepared to exercise leadership through the CI process, an effective means of enacting leadership through consensus building and group facilitation.

5.1. Design

A multiple case study approach reports the experiences of three of six school librarians from Project LEAD who continued to work with the researchers on Project LIA. While all six school librarians led CI projects in their schools during the 2011–2012 academic year (September

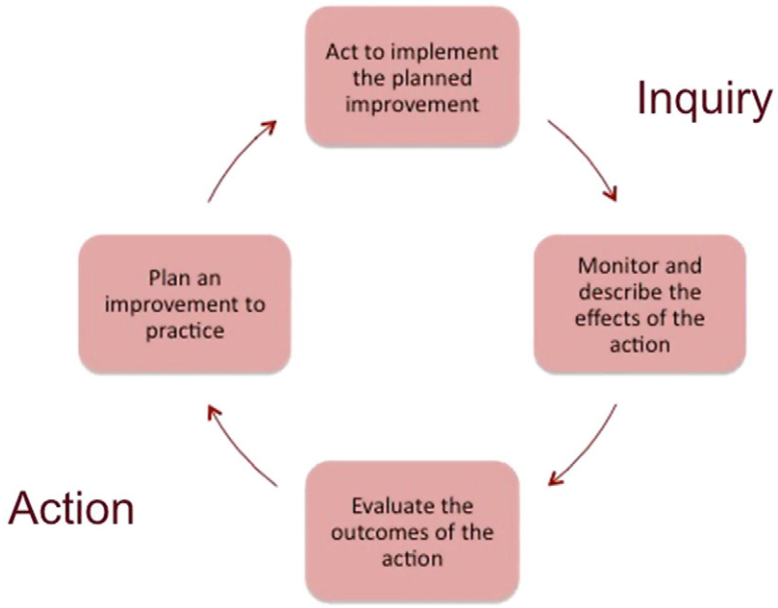

Fig. 1. Cooperative inquiry cycle.

2011–May 2012), the cases of three school librarians are presented here because their CI experiences were the most complete at the time of data collection and because they represented a range of experiences and success levels.

5.1.1. Multiple case study design

So that the researchers could compare across cases, a multiple case study design (MCSD) was selected. MCSD is best suited for research contexts in which the cases are likely to produce contrasting results predictable reasons grounded in theory (Yin, 2003). The use of this particular approach was justified on the proposition that participants who had been educated to lead would indeed attempt to enact leadership roles given the opportunity to use a community building method like cooperative inquiry. As new school librarians, participants' exercise of leadership roles, would be likely to reflect aspects of a conceptual and theoretical framework based on formative leadership. Guided by these two essential aspects of qualitative case study research (Stake, 1995; Yin, 2003), the researchers were able to ensure purposeful sampling and trustworthy analysis of data (Baxter & Jack, 2008).

5.1.2. Participant profiles

The participants were recent MLIS graduates and in their first year as school librarians. All three participants were located in Florida. Participants in the cases presented here include:

- Penny was a veteran high school teacher in southwest Florida. An experienced technology trainer and facilitator, she was drawn to school librarianship because she felt it would allow her to blend her love of teaching with her love of technology. Penny had held many leadership positions in her district throughout her career, but moved to the elementary level specifically to be a technology-forward school librarian.
- Christine was a mid-career middle school teacher in west Florida who was also drawn to school librarianship by a desire to blend teaching and technology. She was also very interested in how to use technology like e-books to inspire struggling learners in an alternative school.
- Jennifer was a mid-career elementary school teacher in north Florida who worked in an elementary school where the majority of students were eligible for free and reduced lunch. Teacher and administrator turnover was high at this school. She became interested in school librarianship as way to reach more children through instilling a love of reading and research, but soon discovered a flair for using and promoting technology for student engagement.

5.2. Procedure

Prior to data collection and analysis, the participants engaged in two preparatory phases before conducting their CI groups.

5.2.1. Phase I: training participants to use cooperative inquiry

First, the participants were trained in the CI process. A team of two expert facilitators from the Research Center for Leadership in Action (RCLA) at New York University and the researchers coordinated a two-day workshop in which participants were introduced to fundamental principles of CI; ways to start a CI group; how to choose a CI issue and question; how to understand the cycle of action and reflection; and the importance of adhering to the validation principles through the inquiry. This first phase of the training functioned as a scene-setting event in which the researchers and the school librarians explored an overarching question driving this study: What is the school librarian's role in technology integration?

The training activities and group discussion prepared participants to guide their unique school-based inquiries. The researchers and RCLA facilitators worked with the school librarian participants to brainstorm examples of how each school librarian could tailor the research question to their own site and methods for moving the inquiry ahead. With the help of facilitators, the participants identified possible challenges they might face in their schools, e.g., lack of time; managing authority and power; and lack of buy-in from school members who did not feel that they would benefit from participating in the process.

The participants also had use of a learning management site in which they could share follow-up questions and experiences that arose after the training and during their CI enactments.

5.2.2. Phase 2: creation of school-based teams

Once the training session was complete, participants returned to their schools and resumed their duties as school librarians. At their schools, participants selected and cultivated their own school-based teams of five to seven members. Each school librarian identified key participants from the school community and sent written invitations to potential team members. The invitations included information regarding the nature of the CI (i.e., to identify a school-based problem

that could be addressed with technology) and an explanation of the CI process. The invitation also explained that by agreeing to participate in the CI, team members were committing to attend the entirety of each meeting; giving the meeting activity their full attention; respecting rules of constructive dialogue; and participating in the action/reflection cycle. Appendix A includes a sample of a participant CI invitation.

5.2.3. Phase 3: cooperative inquiry enactment

Once the team was established, the school librarian conducted a series of CI meetings about a need in their school that could be met with technology. The meeting action items included:

1. List possible focuses of the inquiry;
2. Agree upon a focus for the inquiry through dialogue;
3. Analyze the underlying problem of the inquiry through discussion and review of available data;
4. Devise and prioritize possible solutions to the problem;
5. Determine implementation processes and outcome measures for the solutions;
6. Enact the solution;
7. Reflect on the effectiveness of the solution; and
8. Repeat steps 4–6, if necessary.

In keeping with the procedures of CI, each school librarian organized the meeting spaces and agendas, took notes, and shared the notes with the team members. It should be noted that each school was given $6000 to finance their CI investigations. The funds could be used to purchase software, equipment, training materials, guest speakers, hosting supplies, and any other items necessary to implement the identified solution.

5.3. Data collection

The participants met with the researchers throughout the project and because the group members had also known the researchers and each other as students through Project LEAD, they had informal communication and felt comfortable contacting the researchers and one another for advice and feedback.

Data were collected through a number of means. Participants shared their CI experiences via three video conference sessions; online discussion board postings; emails to the researchers and to other school librarian CI research group participants; and journal entries. Participant journal entries were prompted by questions that were both descriptive and reflective, asking participants not only to record their activities, but also to reflect on their leadership styles and development as new professionals. Appendix depicts the journal format and questions.

5.4. Data analysis

Three participants' cases are intended to be exemplars complete unto themselves, but can also be compared. The data for each case includes each participant's CI process and results, as the researchers ascertained from video conference transcripts, discussion board postings, emails from participants to the researchers, and journals.

Using an open thematic coding scheme based on key aspects of CI and formative leadership theory, the researchers analyzed the participants' artifacts and developed a rubric based on the frequency of the themes' appearances (Appendix C). Once aspects of CI and formative leadership were identified and counted, the researchers used the rubric to classify the participants' cases of high success, intermediate success, and low success according to the criteria presented in Appendix C. It should be emphasized that the scores are not reflective of the participants' competence; rather, the case leadership scores reflect a blend of skills and situational factors that characterized experiences in and outcomes of the participants' CI projects.

As the rubric in Table 1 demonstrates, each case was examined for the three project elements:

1. Use of the CI process in ways that reflect Alcántara's (2009) critical factors of CI: environment, relationships, trust, respect, and facilitation;
2. Exhibition of formative leadership (Ash & Persall, 2000, 2004) traits of imagining future possibilities (risk-taking), examined shared beliefs, asking questions, collecting and using data, and engaging team in meaningful conversation about teaching and learning; and
3. Leadership identity development that encompasses experiences gained in the course of the CI project as well as their leadership skills gained through coursework and other experiences.

Each of the project elements was weighted according to its importance to the study's purpose. CI and formative leadership elements were each assigned weights of two because they are equally important to the study design and philosophy. Because it is centrally important to the overarching question of the study, leadership development received the largest weight of three points.

For each element, participants' experiences were classified into levels of mastery, (i.e., exhibiting all of the element aspects), worth three points; developing, (i.e., exhibiting some of the element aspects); worth two points; and beginning (i.e., exhibiting one of the element aspects), worth one point (Table 1).

Participant leadership scores were then calculated and assigned designations of high (15–21 points); intermediate (8–14 points); and low (3–7 points).

The researchers employed two methods to ensure the reliability of the data analysis. First, working individually, the researchers examined the artifacts and applied codes. Then, the researchers compared their coding and assessed similarities and differences in their results. Discrepancies were discussed and reconciled. In the instance of this study, the researchers were in agreement in their code application, so resolving interpretation variations was not needed.

Then, as recommended by Baxter and Jack (2008), the researchers presented their conclusions to participants to gain consensual validation through "member checking" (Krefting, 1991). Engaging in honest and open reflection not only aided validation, but the participants remarked that the opportunity to communicate their experiences and discuss them with their peers and researchers was a powerful form of professional development.

6. Results

Three participants were able to complete their CI projects and provide enough detail to inform the MCSD analysis.

6.1. Penny: building community through diverse participation

Penny's CI took place in an elementary school. A newcomer to the school, she waited a few weeks to issue her team invitations because she wanted to be sure that she understood the dynamics between teachers, between faculty and administration, and the extent to which parents had input on school policymaking.

Penny reported that she strategically invited team members based on their abilities to represent a variety of perspectives. Her team consisted of two teachers, the assistant principal, and a parent with technology expertise and community connections. This balance engendered respect among the group. In her journal, Penny reported that the CI team's trust was strong; group members were eager to work together and follow through on tasks for one another.

Penny's intent was to model effective technology integration by holding meetings in the school library and using an interactive whiteboard to record and guide the discussions. She wanted to have the participants perceive the school library as a site of technology innovation

Table 1
Data analysis rubric applied to cooperative inquiry cases.

Project element	Mastery (3)	Developing (2)	Beginning (1)
Use of CI process (2)	• Identified CI group members strategically and invited them in writing • Used CI process (relationships, trust, respect) in administering group meeting environment • Established and used clear outcomes and measures • Facilitated action/reflection cycle	• Identified some CI group members strategically and invited some in writing • Used partial CI process to administer group meetings; • Established and used some clear outcomes and measures • Facilitated some action/reflection	• Identified some CI group members strategically or invited some in writing • Used only one aspect of CI process to administer group meetings • Established or used a clear outcomes and measures • Facilitated little action/reflection
Formative leadership traits (2)	Exhibited the following traits: • Imagined future possibilities (risk-taking) • Examined shared beliefs • Asked questions • Collected, analyzed, and interpreted data • Engaged team in meaningful conversation about teaching and learning	Exhibited 2–4 of the following traits: • Imagined future possibilities (risk-taking) • Examined shared beliefs • Asked questions • Collected, analyzed, and interpreted data; • Engaged team in meaningful conversation about teaching and learning	Exhibited one of the following traits: • Imagined future possibilities (risk-taking) • Examined shared beliefs • Asked questions • Collected, analyzed, and interpreted data • Engaged team in meaningful conversation about teaching and learning
Leadership development (3)	• Used CI skills or leadership traits to respond to unexpected developments or structural impediments • Used experiences to develop leadership identity	• Used some CI skills or leadership traits to respond to unexpected developments or structural impediments • Used experiences to develop leadership identity	• Used a CI skill or leadership trait to respond to unexpected developments or structural impediments or • Used experiences to develop leadership identity

and support and the school librarian as a person who was centered in a technology rich environment.

6.1.1. Conduct of Penny's CI group

Their inquiry was centered on the question, "How can teachers quickly and easily integrate technology into their instruction?" Arriving at this question took a few team meetings and the choice of activity was greatly influenced by a large infusion of equipment donated by Apple Computer.

Penny followed the CI team organization process very closely, despite challenges and opportunities that arose during the course of her CI. As Penny explained:

> *Each meeting we generated good discussions and actions steps for next time. I felt however that after each meeting we were not any closer to a decision. The group had some very big ideas that we just didn't have the funding for. I was very excited to bring to the group this meeting the fact that the district received a grant…to have 210 Apple iPads, 109 MacBooks, 10 mobile carts, 6 Canon cameras, 6 snowball microphones, and 3 scanners as well as 300 pairs of headphones and 4 days of training from Apple. As a group this changes the dynamic of our thinking. There are now only a handful of Apple computers in the building. Our staff is not familiar with this platform. In keeping with our question, 'How can we raise the comfort level of our teachers integrating technology in the classroom,' during our meetings I noticed that the teachers of the group gravitated to wanting to buy more technologies rather than utilizing what we already have. I found myself rising to 'lead' the discussion back to answering our question…I am not as proficient on Apple products and therefore it causes me to re-group so that can still serve as a technology leader here at the school. The decision by the group is to use our FSU grant funds to obtain training for me on the Apple products so that I may become a 'trainer' for our school as well as purchase 'time-off' for our teachers to attend the Apple training. At the end of all this, I am feeling more confident as to our direction for using our grant funds. I realize that through all of this, it is difficult to keep a group focused on the "goal."*

Penny used CI meeting organization approaches like strict start and end times and comparative note taking to level any power dynamics between group members. Penny also provided that group members will summarize (see example in Appendix 3) on which they must agree before the meetings could proceed further.

Penny also embraced the district's data driven mindset in her group process. In discussions, she offered the option of a teacher survey to identify the types of training and support teachers felt they would need to integrate technology. New to survey design, Penny was chagrined by her first foray into data collection, but looked upon it as a capacity building skill she could bring to her group. As she reported in a discussion board posting:

> *I am glad I did the survey as it was a useful tool. However, I learned that getting a sample group or having someone take a second look at the survey before you send it out it a good way to make adjustments. Once I had given the survey, I could not ask for the staff to do it again. It would have lessened my credibility. Lesson learned.*

Despite Penny's concern about her survey technique, her willingness to organize a group, collect data, and openly share that data in group decision-making led to an interesting and unanticipated outcome. Her CI group, with full support of all of the building's teachers, voted to make the school library the technology innovation "lab," with installations of all of the school's available technology. Penny was appointed lead trainer and expert of that space.

6.1.2. Outcome of Penny's cooperative inquiry group

Penny reported a high level of satisfaction with her CI. Penny perceived that the team worked well together because the district had

already been using other cooperative and collaborative approaches for professional development. Penny felt that her facilitation was important to the success of the group and she worked very hard to establish her credibility by ensuring that every meeting was well organized and focused.

CI processes complemented Penny's exercise of many formative leadership traits. She took a risk with her group by encouraging them to adopt a new platform for technology and become empowered to use this technology in their teaching. It is likely that Penny's willingness to take on the role of lead trainer and alter her own practice provided a model to which her group members could look. In Penny's words during a video conference, "*I am feeling as if I have gained the trust of the stakeholders as viable technology resource at the school. I am looking forward to our Apple adventure!"*

She used the planning, conduct, and debriefing of the training events and collection of teacher satisfaction data, shared during meetings sited in the school library, to spur conversation between teachers, and administrators about how technology could be integrated and measured to meaningfully improve teaching and learning.

Upon reflection on her CI experience, Penny reported feeling empowered through a great understanding of relationships within her school community as well as by her own ability to link the concept of technology integration with the place and the person of the school library. She also reported that data formed an inarguable middle ground between all stakeholders and formed a positive basis for communication. Still, she felt that the participatory process stifled her personal momentum a bit:

> *I found it hard to step back and not be the 'leader' as much as a facilitator. I am a "get it done" type person and it is not that I don't like working with people; it is just that I find it tedious sometimes when the group gets off track. I am excited to get this all put together so that I can bring teachers and classes in to learn using all of our technologies that we have available. I feel that this process of modeling with the classes in the beginning of the school year in the "media center-technology lab" with the teachers "co-teaching" takes away the fear that many of our teachers have on how to integrate technology.*

6.2. Christine: using technology to foster motivation

Christine's CI took place in a middle school. Early in the school year, Christine decided to attempt in constructing a team with as much building-level perspective diversity as possible. Her team consisted of the building principal, the school computer network manager, the instructional television teacher, a social studies teacher, a math teacher, a music teacher, and a language arts teacher.

6.2.1. Conduct of Christine's CI group

The team's initial progress was strong and they quickly agreed to base their inquiry on the question, "How can we use technology to increase student motivation?" Despite numerous meetings, the group could not reach consensus on how to proceed with a plan to address the question. Without group consensus, as a starting point to a solution, Christine made the decision to buy iPads that could be used to motivate after-school tutoring students to approach learning in a different way.

At first, the CI group was very excited by Christine's leadership and choice of device: *"Seth (team member; music teacher) is already fantasizing about piano compositions by his students! That fantasy is soon to become a reality!"* However, Christine's command decision ultimately delayed the CI team's progress because she had not known that that the district had a different technology implementation plan in mind for the school during same time period. District technology officials did not feel as though they could support two technology initiatives, Christine struggled to get the purchase approved:

> *We were finally approved by the Assistant Superintendent for Technology to purchase the iPads for our project! It was quite a roller coaster ride for a few days. The requisition I prepared went through, then was denied/pulled, then resurrected…then approved! Thank you to our team members, our principal, and, our Network Manager for helping us push through those barriers! As the leader of the CI team, I was also adamant about making sure that [the Assistant Superintendent for Technology] understood exactly what cooperative inquiry is and how we have been diligent in pursuing our technology which will help motivate students, our identified critical need for this project.*

The district delayed Christine's iPad purchase to the end of the school year, but did approve it.

6.2.2. Outcome of Christine's cooperative inquiry

Christine reported feeling some success with her CI process. She conducted meetings in the library after school and provided snacks to inspire attendance. She constructed a wiki for communication and ensured equal talk time for everyone in meetings. Group members were each accountable for something between meetings; no one group member had to carry all the weight.

The group experienced some distrust because a few members disagreed with the device choice. The network manager, who was originally supportive of the iPad purchase, blocked the download of apps once the devices were delivered. Despite these initial difficulties balancing perspectives and facilitator roles, Christine reported that she would use the CI process again. She felt that the $6000 funding, along with the fact that the project had a university sponsor, heightened her colleagues' regard for the school librarian.

Through the process, Christine came to realize that facilitating consensus was leadership. She realized that although she took a risk in taking the step to buy iPads, she felt that the decision engendered meaningful conversation about what and how various members of the school community wanted children to be learning with technology. Group members had not exchanged these beliefs before and Christine reported that the experience of building relationships was positive—even if the technology integration was troubled.

6.3. Jennifer: change presents challenges

Jennifer's CI took place in an elementary school. Her CI team consisted of two teachers, a parent liaison, a volunteer coordinator, and a technology coordinator. Jennifer had been a teacher and a parent in her school's community. Because of her close personal link to many individuals in her school, Jennifer chose not to exercise the initial step of CI and invite her group members. Instead, her group was comprised of volunteers who had relationships with Jennifer and with each other.

The CI team explored, "How can parents be taught the importance of technology to their child's education?" In response, the team designed workshops for parents to learn basic computer skills such as email, web searching, and filling out job applications.

6.3.1. Conduct of Jennifer's CI group

Although Jennifer felt good about the after-school meetings held in the library and their overall professional tone, she felt that more time for the team to establish personal relationships would have been beneficial. Perhaps as a result, the team suffered interpersonal conflict, lack of shared purpose, and erratic attendance. In Jennifer's words, "*our team has been mixed up so a new team may need to form*." With a lack of consistent involvement, the group could not share organization and administration tasks and Jennifer was left to execute many of the team's plans on her own.

Table 2
Exemplars of CI participants' experiences, recommendations, and case leadership scores.

Group factor	Case 1: Penny (21 points)	Case 2: Christine (14 points)	Case 3: Jennifer (7 points)
School type	Elementary	Middle	Elementary
Implementation success level	High	Intermediate	Low
Team members	3rd grade teacher, 1st grade teacher, principal, assistant principal, parent volunteer technology expert	Principal, network manager, instructional TV teacher, social studies teacher, math teacher, music teacher, language arts teacher	5th grade teacher, 2nd grade teacher, parent liaison, volunteer coordinator, technology coordinator
Question	How can teachers quickly and easily integrate technology into their instruction?	How can we increase student motivation?	How can parents be taught the importance of technology to their child's education?
Project description	Developed a technology-rich media center; met with classes every two weeks and taught students along with their teachers how to integrate new hardware or software by modeling.	Used handheld devices to motivate students in after-school tutoring to approach learning in a different way.	Designed workshops for parents to learn basic computer skills such as email, social networking, and filling out job applications.
Main group issues	Worked well together since a similar process has been being used in district; faculty more committed than administration	Team members remained professional even when two members left to go to other schools; network manager who was originally supportive, blocked the download of apps once tablets were purchased	Interpersonal conflict; erratic attendance; group reformulation; members' discomfort and skepticism with technology; group had to be disbanded and another formed
Use of CI process	• Held efficient meetings as a result of following agenda and planning next steps; • CI group is representative of school; • Used iterative cycle to improve implementation (6 points)	• Made it clear it was a group process; • Struggled to bridge diverse perspectives; • Made command decision about technology project (4 points)	• Principal not a member of the team; • Team members included parents; • Team members solicited at a faculty meeting, not strategically invited (2 points)
Formative leadership traits	• Collected pre/post data to determine impact and gain faculty buy-in of the process; • Engaged all stakeholders in discussions about learning; • Encouraged parents, teachers, and students to learn together (6 points)	• Tracked four students with pre/post test scores; • Maintained confidence in school librarian's role as a facilitator (4 points)	• Asked engaging questions • Reinforced that CI is a group process (2 points)
Leadership development	• Gained confidence through CI process • Became integral part of school community and leader among local school librarians • Named to school leadership teams (9 points)	• Felt empowered by CI process • Was asked to join other school leadership teams (6 points)	• Became more aware of leadership style • Appointed to lead discussions on how to spend significant technology funding school received. (3 points)
Lessons learned and recommendations	• Form a committee that covers all areas of school expertise • Examine implementation by specific grade levels	• Determine how you are going to collect data to determine impact from the beginning • Move more quickly through the process and facilitate faster decision-making • Conduct anecdotal student interviews throughout the project	• Select team members according to commitment and ability to get along with others • Record the meetings so you have accurate information • Ensure principal's participation • Have a “Plan B” in case plans need to change

Jennifer's group also realized that parent involvement is a difficult thing to negotiate. The first few parent outreach events were sparsely attended because as Jennifer observed in a video conference, "*Parents were coming to the school for so many different reasons on so many different nights*" and Jennifer led the group through a discussion of possible remedies. Once the group decided to coincide the parent technology events with other school events, attendance improved.

6.3.2. Outcome of Jennifer's CI group

In the end, Jennifer concluded her CI group experience feeling as though it was an incomplete endeavor:

> *My team has dispersed. There are only two of us now even though we had all of the five meetings we scheduled. Initially, we decided to purchase netbooks to use in the training and have a checkout system for the parents to take them home. Due to the transient population at our school, the administration advised us not to do the checkout system because of past loan programs that resulted in stuff just disappearing—which I totally understand now that I didn't before. Now what?*

Ultimately, at the conclusion of the CI group experience, Jennifer decided to buy iPads instead of netbooks and keep them at school for parents to use.

Jennifer called upon many formative leadership traits to address interpersonal conflicts and dysfunctional group dynamics that emerged over time. She encouraged the group to take a risk and present workshops for parents without assurance that the workshops would be attended or fit a perceived need in the community. At times, Jennifer facilitated bold and contentious group meeting discussions in an attempt to get group members to share values and ideas. Ultimately, workshops were held and attended and the group was reconstituted into a more harmonious combination of participants. Yet, Jennifer is willing to use CI again and considers many of her experiences "lessons learned" about the need to use CI as a neutral, consensus-building process and how to exercise leadership in a complex work and social environment. As Jennifer concluded in her final reflection journal entry:

> *The beauty of the CI model is that each person is able to show his or her expertise in a particular area and it allows everyone to participate in the group equally. Or at least that is the intent. We thought that we had come up with a plan that would allow each person to be a presenter to lead a session and we would assist. The animosity between [two group members] created some difficulties within the group constantly…This was of course all a part of the learning process and CI. Unfortunately, our team did not work as well together as I had hoped. I don't want to say it was due to the CI model. The model seems very effective if the group dynamics are such that all participants are willing to do their part.*

7. Discussion

Table 2 details the participants, sites, topics, and challenges of each leadership case and summarizes the results of each of the participants' cases in relation to related use of the CI process (Alcántara, 2009); formative leadership traits (Ash & Persall, 2000, 2004); and overall leadership development. The table also includes recommendations each participant made about the process experienced in each leadership case.

Each of the cases yielded important insights into the questions that guided this study.

7.1. Exercising formative leadership to facilitate CI groups

The participants exhibited many formative leadership traits, mainly through strategic selection of their CI teams, skillful discussion facilitation, and consistent administration of the CI process. Jennifer's difficulties may be traced to allowing the group to self-select, rather than deliberately identifying and inviting influential members of the school community. Jennifer's team, even with persistent reminders that she was a facilitator and not the sole team leader, continued to look to her to set the meeting agendas and define the team's work. She also described group dynamics as very poor. Given that the CI participants were first-year school librarians in these schools, it is understandable that team selection was challenging. Those who were successful built teams that were a cross-section of the faculty and also included the technology coordinators and principal.

7.2. Applying formative leadership to CI processes

Participants who led a successful CI process noted careful team selection, sensitive and diplomatic discussion facilitation, and professional follow-through as determining factors. The participants emphasized the success of group ownership of problem and process. A well-conducted CI process helped the inquiry teams focus to address problems in their schools with technology and quickly and collaboratively propose possible solutions. Training in the CI process was essential. The skills on how to be an effective listener, facilitation, focusing the group, diversifying their CI group, discussing scenarios, and modeling of the process were all reported as being helpful in achieving their goals for their project.

A factor that contributed to those who were less successful was that they did not have a well-defined question to pursue. Christine decided almost immediately to seize the funding to purchase iPads without gaining group consensus. Although this move was contrary to the spirit, if not the goals, of the research, we did not interfere with the participant's decision but let the process unfold naturally.

7.3. Relationship of formative leadership and CI to leadership success

For new school librarians, leadership involves both forming their insights into school culture as well as influencing colleagues' ideas of what school librarians can and should do. The Project LEAD education gave them the confidence to tackle their new positions as school librarians from the perspective of a leader, particularly in the area of technology integration. The CI process gave them a technique to enact and reflect on this early leadership experience with others.

Schools are hierarchical, driven by policy, and framed by concrete objectives and learning standards. Due to these often conflicting forces, many teachers, hindered by scarce time and resources, are unsure how to participate in decision-making and inquiry (Bottoms & Schmidt-Davis, 2010). Penny, the most successful participant remarked, "*I found that I had to re-think and revise many of the activities to relate to our school setting. It felt very 'corporate' to me.*" Comments like these have led to consideration of an adaptation to the CI process model that might make it more compatible with school librarian leadership.

Successful teams were those in which the school librarian invited diverse and influential team members. Although the school librarians were new and did not know other staff members, they relied on their leadership education to determine critical members for their teams. In the case of low success, Jennifer asked for volunteers. Heron (1996) noted the importance for CI facilitators to formally invite potential members to set the stage for mutual trust, respect and understanding throughout the course of the entire process.

Initially, the school librarians reported that their teams looked to them to be a formal leader. It may be that environment played a role in this perception (Alcántara, 2009). The participants held all of their meetings in the school library, a space they controlled. Although the participants described their libraries as excellent environments, holding meetings at other places in the school could reinforce the team concept

of the CI. Those who maximized their effectiveness as leaders did so by trusting the CI cycle and process. Leaders confronted fear and uncertainty (Ash & Persall, 2004) from other team members by facilitating communication at and between meetings and continuing to ask questions.

Existing research literature does not address the importance of data collection in the CI method as was emphasized by these participants. Given the emphasis on data for decision-making in schools today, this is surprising. Each of the participants that collected pre- and post-implementation data felt it reinforced confidence in their leadership abilities. The participants also suggested that it was important to collect anecdotal student and team member feedback in addition to more formal data throughout the project.

The cases all exhibited CI process elements that shaped essential activities and led to short and possibly long term outcomes of CI as a leadership development strategy (Fig. 2).

For example, each of the participants centered on the essential activities of using the action/reflection cycle and the bridging of diverse perspectives through group planning to allow each individual to fully engage in the CI process. Each participant was conscious of, and attempted to include, voluntary participation by a limited yet representative group. In the cases presented here, it is also possible that an emphasis on comfortable meeting environments and ongoing support aspects of formative leadership, as well as financial incentives, aided the leadership cases presented here. The data analysis suggested that short-term outcomes of CI could already be observed in that collegiality, confidence, professional enhancement, and a demonstrable effect on local issues were apparent in each case. Participant feedback also posits that as leaders, they are progressing toward internalizing CI as an effective leadership tool.

8. Conclusion

The study presented here detailed the experiences of three new school librarians who were educated in leadership theory, grounded in the cooperative inquiry leadership philosophy and process, and entering a variety of organizational and technology environments. While their experiences affirmed prior research that suggested that principal support for technology and collaborative decision-making greatly influenced the school librarians' leadership success, CI also proved to be a powerful means for new school librarians to develop competencies and awareness necessary to lead effectively in a variety of educational and political contexts (Kasl & Yorks, 2010). Additionally, the CI process allowed the participants to be conscious of their own developing leadership and become emboldened by their formative experiences (Janson, 2008). The CI process enabled school librarians to merge the perspectives of diverse stakeholders through collaborative problem solving.

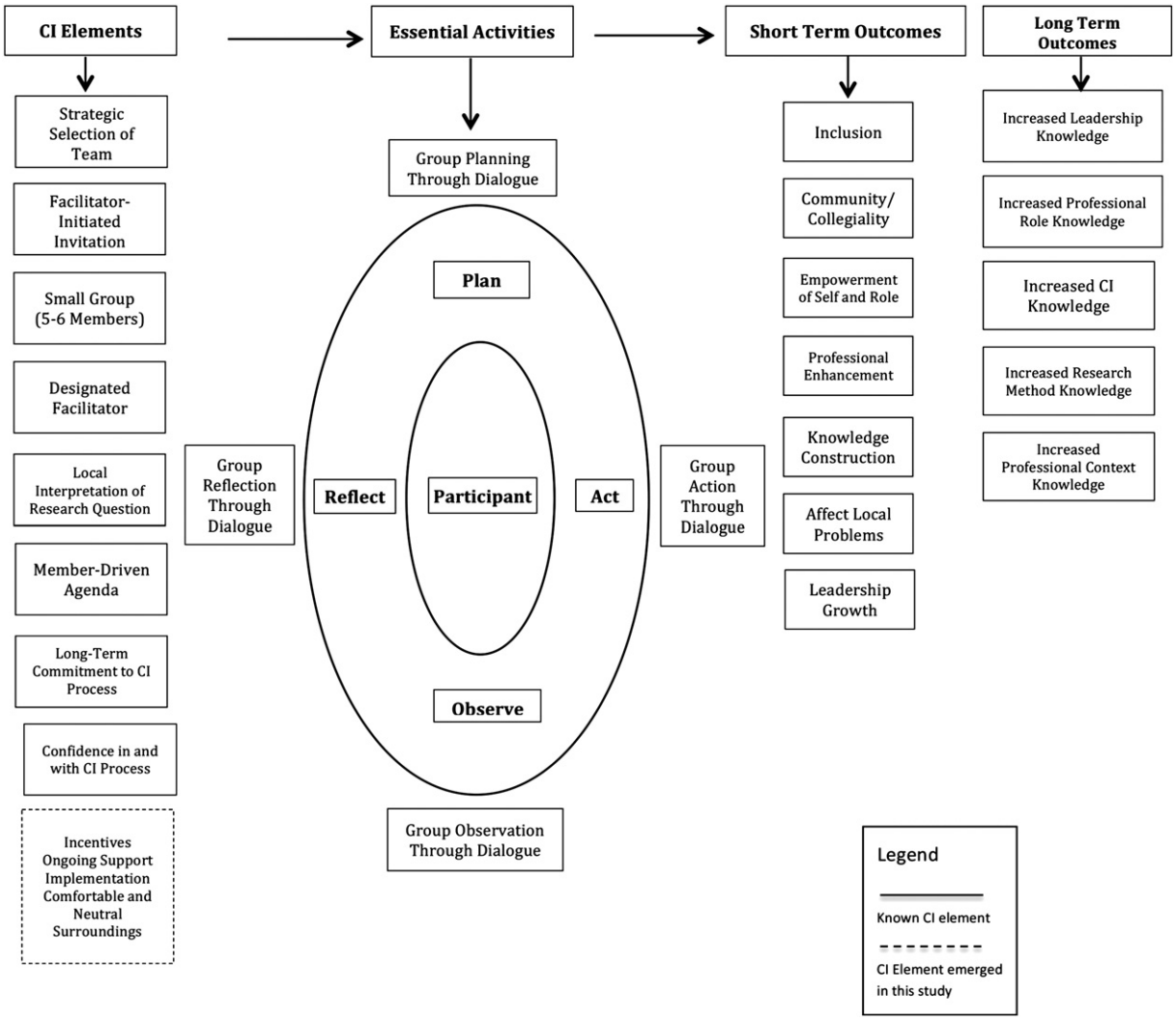

Fig. 2. Cooperative inquiry leadership development strategy.

This study provides research findings that are a starting point for future research and education.

This study raised points that could be considered in further research. First, although the cases were intended to be technology integration-based, each case was challenged, to come extent, by the groups' concern with equipment. While certainly equipment is an essential element of technology integration, personal preferences for, policies regarding, and costs of equipment became the central to each of the CI leadership cases. CI facilitators and researchers should plan for this possibility and ensure that strategies that redirect group primary focus to teaching and learning is important.

Second, each of the participants had experience as classroom teachers, often in the same schools in which they were becoming school librarians. While the participants were new school librarians, they were not new educators and research suggests that there is a relationship between classroom teaching experience and the ways in which new school librarians enact their roles with confidence (Mardis, 2007a, 2013). This knowledge of school dynamics was knowledge that the participants often called upon. If CI is to be used by school librarians completely new to the school as a workplace, an additional layer of education and awareness may need to be cultivated before leadership can reasonably be assumed.

The results of this study also suggest that CI may be a useful leadership tool in other library contexts. The process of action and reflection, coupled with the concept of participant-researchers, allows for data to be collected in an unobtrusive manner and in multiple locations. The cycle of action and reflection can be spread out or condensed, depending on the needs of the participants. It is helpful to provide prompts at various points for focused reflection as this leads to a richer discussion, allows the participants to model and tell stories, and for researchers to compare data among cases to determine the effectiveness of leadership experiences.

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Appendix A. Sample invitation to join cooperative inquiry group

[Date]

Dear [potential member name],

I believe you would be an excellent participant in a group I am organizing to explore how we might use technology to improve our teaching and learning environment. The group will be composed of 5–7 members of our school community who are interested in working together on identifying a focus and process by which we might affect positive change for our students.

If you are interested in participating in this group, I encourage you to attend our initial meeting to be held on [date]. At this point, the process will likely involve 5–7 two hour meetings that will begin in [month] and end in [month].

Your full participation in the group is essential and I ask that you attend the initial group meeting if you are able and interested in 1) attending all group meetings in their entirety; 2) engaging in discussion and taking notes; 3) participating in problem and process identification and implementation, and 4) working with group members to assess the success of the strategies we implement.

If you are willing to contribute your time and expertise to the group, please attend the first meeting. If you have any questions in the meantime, please feel free to contact me—stop by the library, drop a note in my mailbox, call me at [school phone extension], or email me at [email address].

If you feel that this opportunity is not for you at this time, please let me know via one of the methods I have listed above.

I eagerly await your reply.

Sincerely,

[study participant name]

Appendix B. Autoethnographic journal format and prompts

You have agreed to participate in a research study about the leadership role of the school librarian in technology integration. In other words, you're changing subcultures within the school. As part of your participation, we'd like you to keep your journal in a particular way. Instead of simply recording your activities, we'd like you to reflect more deeply on how you are changing and practicing leadership in your school librarian role.

What an autoethnography is:

- An analytical/objective personal account
- About the self/writer as part of a group or culture (your two cultures are your old role and new role as school librarian)
- Often a description of a conflict of cultures
- Often an analysis of being different or an outsider
- Usually written to an audience not a part of the group
- An attempt to see self as others might
- An opportunity to explain differences from the inside.

What an autoethnography is not:

- A traditional personal narrative
- A single event, incident, or experience
- Written to the self as the major audience
- A simple description or story.

What we're asking you to do:

- Think about the way you define leadership. Think of how you define technology integration.
  - How do you see the technology integration leadership role of the school librarian role?
  - What do you like about this role?
  - What don't you like about this role?
  - If you had to describe yourself in that role, how would you describe yourself?
  - Why did you want to be a school librarian? How would you describe yourself?
- As you engage in your cooperative inquiry project, try to be conscious of which feelings are reactions you are having as a leader.
- Think about the new experiences you're having as a school librarian. What aspects of your leadership and technology integrations are you using? Which skills do you absolutely not have but are developing? Where did you learn the leadership skills you are using?
- When you complete the project, reflect on your leadership from the beginning of your project and from the beginning of your journey to school librarianship. Are you more or less of a leader now? What aspects of leadership would you still like to develop? What incidents, feelings, or actions created these feelings about your leadership? What is it about your school culture that fostered or inhibited your leadership?
- Overall, we'd like you to just be conscious (and write about) how your professional and possibly even personal self is changing as you perform leadership roles in technology integration during your project. Other areas of leadership in your school librarianship are interesting too. For example, your ability to build collaborative relationships or interact with your principal may have changed.
- Of course, any other information you'd like to share about your project's development is great. Trace the formation of the idea, any challenges you faced cultivating buy-in, the new realizations you've gained about your school, etc.
- Be sure to date and time code all entries.

Appendix C. Cooperative inquiry meeting summary

Meeting date: January 12, 2011 Start: 1:47 AM Time end: 3:10 pm.

Team member name	Title
A.H.	Assistant principal
R.F.	Media specialist
R.L	Teacher
M.W	Teacher
J.O.	Technology volunteer

Agenda	Actions
Review last meeting	• Trial Airliners in classrooms for feedback (school has 2) • Price Airliners and TDEs • Brainstorm more ideas on teacher comfort level and new technologies that would enhance curriculum
Inquiry question	Q: What is an issue at our school that could be addressed with technology? A: How can we raise the comfort level of our staff to integrate technology in their teaching?
Action steps from last meeting	• Still like Airliners-teachers on committee will try them out • Survey staff on which technology they would like training for on TDE training day.
Reflect on action steps	• Mrs. WI-1st grade and Mrs. WH 5th grade are testing out the Airliners. Feedback has been positive however, Bluetooth is unreliable. • New Apple grant…$326,000. iPads, MacBooks, mobile carts, cameras, scanners, snowball mics. • Survey completed: teachers top three requested items: Moodle training, digital storytelling and "what can I use my digital projector for besides just projecting"
Discussion	• Since our last meeting we have received a grant for iPads and MacBooks for our students. The groups discussed using this FSU grant money to "piggy-back" on this grant to provide extensive hands on training and integration for our staff to utilize all of the new technology we will receive in February. • Each teacher will receive an iPad • 10 carts iPad and MacBooks labs will be set-up • Training ideas need to be generated for next meeting
Action steps for next time:	• Set up new technology from Apple • Training ideas for iPads • Meet with Apple sales rep for trainers • Meet with district academic computing to discuss training • Purchase class set of responders for upcoming training $600.00
Next meeting	February 15, 2011

References

Achterman, D.L. (2008). *Haves, halves, and have-nots: School libraries and student achievement in California* (Unpublished doctoral dissertation). University of North Texas, Denton, TX.

Adams, C., & Jean-Marie, G. (2011). A diffusion approach to study leadership reform. *Journal of Educational Administration*, *49*(4), 354–377. http://dx.doi.org/10.1108/09578231111146452.

Alcántara, L.A. (2009). *Not just talk: Individual and institutional critical factors affecting knowledge production from systematic cooperative inquiry groups.* (Unpublished doctoral dissertation). Columbia University, New York, NY.

American Association of School Librarians (2007). *Standards for the 21st-century learner.* Retrieved from http://www.ala.org/aasl/files/guidelinesandstandards/learningstandards/AASL_Learning_Standards_2007.pdf.

American Association of School Librarians (2009). *Empowering learners: Guidelines for school library media programs.* Chicago. IL: American Library Association.

Anderson, R. E., & Dexter, S. (2005). School technology leadership: An empirical investigation of prevalence and effect. *Educational Administration Quarterly*, *41*(1), 49–82. http://dx.doi.org/10.1177/0013161X04269517.

Ash, R. C., & Persall, J. M. (2000). The principal as chief learning officer: Developing teacher leaders. *NASSP Bulletin*, *84*(616), 15–22. http://dx.doi.org/10.1177/019263650008461604.

Ash, R. C., & Persall, J. M. (2004). *The principal as chief learning officer: The new work of formative leadership.* Retrieved from http://www.refresher.com/aclo.html.

Asselin, M. (2005). Teaching information skills in the information age: An examination of trends in the middle grades. *School Libraries Worldwide*, *11*(1), 17–36.

Avolio, B. J., & Gibbons, T. C. (1988). Developing transformational leaders: A life span approach. In J. A. Kanungo (Ed.), *Charismatic leadership: The elusive factor in organizational effectiveness* (pp. 276–308). San Francisco, CA: Jossey-Bass.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, *13*(4), 544–559. Retrieved from http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf.

Bottoms, G., & Schmidt-Davis, J. (2010, August). *The three essentials: Improving schools requires district vision, district and state support, and principal leadership.* Retrieved from http://www.wallacefoundation.org/knowledge-center/school-leadership/district-policy-and-practice/Documents/Three-Essentials-to-Improving-Schools.pdf.

DiPaola, M., & Tschannen-Moran, M. (2001). Organizational citizenship behavior in schools and its relationship to school climate. *Journal of School Leadership*, *11*, 424–447.

Everhart, N., & Dresang, E. T. (2007). Integrating research results and national board certification standards into a leadership curriculum for school library media specialists. *Journal of Education for Library and Information Science*, *48*, 271–283.

Everhart, N., & Mardis, M. A. (2010). *The leadership role of the teacher librarian in technology integration: Early results of a survey of highly certified teacher librarians in the united states.* Paper presented at the Diversity Challenge Resilience: School Libraries in Action Proceedings of the 12th Biennial School Library Association of Queensland, the 39th International Association of School Librarianship Annual Conference incorporating the 14th International Forum on Research in School Librarianship, 27 September–1 October, Brisbane QLD Australia.

Everhart, N., & Mardis, M. A. (2011). *Cooperative inquiry as a methodology and means of consensus-building for school-based technology integration and school librarian leadership.* Paper presented at the Association for Library and Information Science Educators [ALISE], San Diego, CA (January 5–7, 2011).

Everhart, N., Mardis, M. A., & Johnston, M. (2011). National board certified school librarians' leadership in technology integration: Results of a national survey. *School Library Media Research*, *14*. Retrieved from http://www.ala.org/aasl/aaslpubsandjournals/slmrb/slmrcontents/volume14/everhart_mardis.

Hanson-Baldauf, D., & Hughes-Hassell, S. (2009). The information and communication technology competencies of students enrolled in school library media certification programs. *Library & Information Science Research*, *31*, 3–11. http://dx.doi.org/10.1016/j.lisr.2008.03.003.

Hartzell, G. N. (2002). The principal's perceptions of school libraries and teacher-librarians. *School Libraries Worldwide*, *8*(1), 92–110.

Heron, J. (1996). *Co-operative inquiry: Research into the human condition.* Thousand Oaks, CA: Sage.

Hixon, E., & Buckenmeyer, J. (2009). Revisiting technology integration in schools: Implications for professional development. *Computers in the Schools*, *26*(2), 130–146. http://dx.doi.org/10.1080/07380560902906070.

Hoffman, E. S., & Mardis, M. A. (2008). Leadership, collaboration, and support: Results from a survey of science and mathematics in U.S. Middle school media centers. *Michigan Science Teachers' Association Journal*, *53*(2).

Janson, A. (2008). Extracting leadership knowledge from formative experiences. *Leadership*, *4*(1), 73–94. http://dx.doi.org/10.1177/1742715007085770.

Johnston, M. (2012). Connecting teacher librarians for technology integration leadership. *School Libraries Worldwide*, *18*(1), 1–11.

Kasl, E., & Yorks, L. (2010). "Whose inquiry is this anyway?" Money, power, reports, and collaborative inquiry. *Adult Education Quarterly*, *60*(4), 315–338. http://dx.doi.org/10.1177/0741713609347367.

Kovari, V., Hicks, T., Ferlazzo, L., McGarvey, C., Ochs, M., Alcantara, L., et al. (2004). *Leaders as lead learners.* Retrieved from http://wagner.nyu.edu/leadership/reports/files/LeadersLearners.pdf.

Krefting, L. (1991). Rigor in qualitative research: The assessment of trustworthiness. *American Journal of Occupational Therapy*, *45*, 214–222.

Lawson, J.E. (2008). *An examination of cooperative inquiry as a professional learning strategy for inner-city principals* (Unpublished doctoral dissertation). University of Manitoba, Winnipeg, Manitoba, Canada.
Leithwood, K., Riedlinger, B., Bauer, S., & Jantzi, D. (2003). Leadership program effects on student learning: The case of the greater new Orleans school leadership center. *Journal of School Leadership*, *13*(6), 707–738.
Mardis, M. A. (2007). From one to one to one to many: A study of the practicum in the transition from teacher to school library media specialist. *Journal of Education for Library and Information Science*, *48*, 218–235.
Mardis, M. A. (2007). Unpacking the baggage of collaboration: Some factors to consider. *Media Spectrum*, *33*(3), 10–11.
Mardis, M. A. (2007). School libraries and science achievement: A view from Michigan's middle schools. *School Library Media Research*, *10*. Retrieved from http://www.ala.org/ala/aasl/aaslpubsandjournals/slmrb/slmrcontents/volume10/mardis_schoollibrariesandscience.cfm.
Mardis, M. A. (2013). Transfer, lead, look inward: Further study of the transition from teacher to school librarian. *Journal of Education for Library and Information Science*, *54*, 37–54.
Maxfield, C. R., & Flumerfelt, S. (2009). The empowering principal: Leadership behaviors needed by effective principals as identified by emerging leaders and principals. *International Journal of Teacher Leadership*, *2*(2), 39–48.
Montiel-Overall, P. (2005, October 4–5). Toward a model of collaboration for librarians and educators. *Paper presented at the Treasure Mountain Research Retreat #12, Pittsburgh, PA.*
Montiel-Overall, P. (2005). Toward a theory of collaboration for teachers and librarians. *School Library Media Research*, *8*. Retrieved from http://www.ala.org/ala/aasl/aaslpubsandjournals/slmrb/slmrcontents/volume82005/theory.htm.
Muijs, D., & Harris, A. (2003). Teacher leadership—improvement through empowerment?: An overview of the literature. *Educational Management & Administration Leadership*, *31*(4), 437–448. http://dx.doi.org/10.1177/0263211X030314007.
Oates, B. J. (2002). Co-operative inquiry: Reflections on practice. *Electronic Journal of Business Research Methods*, *1*(1), 27-27 http://www.ejbrm.com/issue/download.html?idArticle=102.
Ospina, S., Dodge, J., Godsoe, B., Minieri, J., Reza, S., & Schall, E. (2004). From consent to mutual inquiry. *Action Research*, *2*(1), 47–69.
Reason, P., & Heron, J. (2004). *A layperson's guide to co-operative inquiry*. Retrieved from http://www.bath.ac.uk/carpp/publications/coop_inquiry.html.
Saldivar, M. G. (2011, May 5). Teacher integration of digital resources into instructional practice. *Ccs report no. 4.* Retrieved from http://www.box.net/shared/msp94zfmk9.
Schofield, J. W., & Davidson, A. L. (2002). *Bringing the internet to school: Lessons from an urban district.* San Francisco, CA: Jossey-Bass.
Scholastic (2008). *School libraries work!* (3rd ed.). Retrieved from http://www2.scholastic.com/content/collateral_resources/pdf/s/slw3_2008.pdf.
Slygh, G.L. (2000). *Shake, rattle, and role! The effects of professional community on the collaborative role of the school librarian* (Unpublished doctoral dissertation). University of Wisconsin—Madison
Smith, D. (2011). Educating preservice school librarians to lead: A study of self-perceived transformational leadership behaviors. *School Library Media Research*, *14*. Retrieved from http://www.ala.org/aasl/aaslpubsandjournals/slmrb/slmrcontents/volume14/smith.
Smith, D. (2012). The role of mentoring in the leadership development of pre-service school librarians. *Education Libraries*, *36*(1). Retrieved from http://education.sla.org/wp-content/uploads/2012/12/36-1.pdf.
Stake, R. E. (1995). *The art of case study research.* Thousand Oaks, CA: Sage.
Vansickle, S. (2000). Educating preservice media specialists: Developing school leaders. *School Libraries Worldwide*, *6*(2), 1–20.
Warschauer, M., & Matuchniak, T. (2010). New technology and digital worlds: Analyzing evidence of equity in access, use, and outcomes. *Review of Educational Research*, *34*, 179–225. http://dx.doi.org/10.3102/0091732X09349791.
Willard, N. (2003, September). *Can you override your internet filter? A close examination of the supreme court decision has implications for school librarians nationwide.* Retrieved from http://www.districtadministration.com/article/can-you-override-your-internet-filter.
Yin, R. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.
Zmuda, A., & Harada, V. H. (2008). *Librarians as learning specialists.* Westport, CT: Libraries Unlimited.

Marcia A. Mardis is an associate professor at Florida State University's (FSU) School of Information where she teaches and conducts research in the areas of school librarianship, digital libraries, and broadband. She is affiliate faculty at the university's Partnerships Advancing Library Media (PALM) Center, an international research center for school librarian leadership; FSU's Information Institute; and the Institute for Digital Information and Scientific Communication (iDigInfo) as well as a distinguished research fellow at the University Corporation for Atmospheric Research (UCAR). Dr. Mardis received her Ed.D. from Eastern Michigan University and has previously published in *School Library Research*; *School Libraries Worldwide*; *Journal of Education for Library & Information Science*; *Journal of the Association for Information Science & Technology*; *Learning, Media, & Technology*; *Evidence Based Library and Information Practice*; and the *Journal for Research on Libraries and Young Adults*. She is the author of two forthcoming books: *The Collection Program in Schools*: *Concepts*, *Practices*, *and Information Sources* (6th ed.) and *Developing STEM with the Library Collection*: *Books*, *Digital Resources*, *and the Common Core*, both to be published by Libraries Unlimited.

Nancy Everhart is an associate professor at Florida State University's School of Information, where she teaches and conducts research in the areas of school librarianship and technology leadership. She is also director of the university's Partnerships Advancing Library Media (PALM) Center, an international research center for school librarian leadership. Dr. Everhart received her Ph.D. from Florida State University and has published in *School Library Research*, *School Libraries Worldwide*, *Journal of Education for Library & Information Science*, *Library Quarterly*, and *Library & Information Science Research*. She is the author of *Controversial Issues in School Librarianship*: *Divergent Perspectives* (2003, Linworth Publishing).