
Secondary Teachers' Perceptions on Collaboration and Teaching Information Literacy Skills

Sarah Crary

North Dakota State University, USA

Information literacy instruction helps students' academic achievement (Smalley, 2004; O'Sullivan & Dallas, 2010) and requires collaborative instruction between the librarian and teacher. This study is a follow up of the author's previous research in order to address the limitations of a small sample and lack of rural population (Crary, 2019). In addition, this study expands on the use of Fullan's (2007) Change Theory to initiate the change towards collaborative instruction of these skills from the teacher's perspective. Secondary education (ages 11-18) teachers (N = 404) in North Dakota responded to a survey. Results were analyzed for teachers' perceptions about collaborative roles between a school librarian and a classroom teacher regarding information literacy skills. The results indicated teachers teaching information literacy alone or collaborating with the librarian are more open to change. Schools need to provide ongoing professional development on information literacy and collaboration.

Introduction

Information literacy skills are needed in order for students to be successful (Smalley, 2004; O'Sullivan & Dallas, 2010). College professors recognize that students need information literacy skills in order to do well on assignments, even though they do not grade students specifically on these skills (Saunders, 2014). College professors believe that 59% of their students were underprepared overall for college and 40% believe they were underprepared for research in college (Latham & Gross, 2008). College faculty state students over rely on search engines like Google along and they lack an ability to critically analyze the information found (Saunders, 2014). But, college faculty lack agreement as to who should teach these skills; secondary educators (ages 11-18), librarians, college faculty, or a combination of groups (Saunders, 2014). Regardless, students (age 18) are graduating and entering college lacking information literacy skills and thus underprepared for the challenges of post-secondary education.

The American Association of School Librarians (AASL) has included the role of teaching information literacy skills in their standards for school librarians since 1988 (Burns & Mardis, 2018). However, collaboration is needed with the classroom teacher to ensure these lessons are taught to align to subject content. The goal is to create collegial relationships and collective goals to foster collaborative instruction (Jao & McDougall, 2016). Teachers may be resistant to this change because they may feel their knowledge and abilities are threatened (Fluck & Dowden, 2013). Since collaboration helps with student achievement, the reasons teachers are reluctant needs to be examined as few studies exist on how to describe or develop the collaborative culture (Olszewski, 2014; Yuan & Zhang, 2016).

This study is a follow up of my previous research in order to address the limitations of a small sample and lack of rural population (Crary, 2019). Additional questions were added to gather data to analyze teacher familiarity with information literacy, current level of collaboration with school librarians, and the impact of school organization and size on openness to change and teaching

these skills. In addition, this study expands on the use of Fullan's (2007) Change Theory to initiate the change towards collaborative instruction of these skills from the teacher's perspective. The results help build empirical research on teaching information literacy skills collaboratively from the secondary teacher perspective, which has largely been from the librarian perspective (Crary, 2019). The data was analyzed to determine what factors predict teachers expectations for teaching these skills.

Theoretical Framework- Fullan's Change Theory

Fullan's (2007) Change Theory was used as the theoretical framework previously (Crary, 2019). Fullan (2007) states that begins with initiation of a change, which is the focus of this research. The initiation is the step determine if improvement is needed and what plan should be adopted. According to Fullan (2007), change is often difficult due to lack of consistency, clear direction, ability to connect the change to the work, teacher support, and ineffective training. It is not always clear whose role initiation is; teacher, principal or superintendent.

Research Questions

1. What differences exist among teachers (gender, core/non-core, grade level taught) regarding librarian roles in information literacy skills?
2. How does openness to change predict teacher expectations for teaching information literacy skills

Review of the Literature

Effective School Organization

High schools (ages 14-18) are frequently organized by departments, meaning that teachers are grouped by the subject they teach rather than by the students they teach (Corcoran & Silander, 2009). Social studies teachers would be placed in a similar office space or classrooms near each other regardless of how many students they have in common. This organization often means that those teaching the core classes (English, math, science or social studies) do so independently of other core teachers (Corcoran & Silander, 2009). Strong departments can sometimes foster collaboration and growth in teachers by vertically aligning skills and sharing teaching strategies. Other departments may reinforce isolation by only focusing on their individual courses (Corcoran & Silander, 2009).

Middle schools (ages 11-14) in the 2000's shifted towards a team model for organizing students and teachers (Tonso, Jung & Colombo, 2006). The Carnegie Council on Adolescent Development (1989) published *Turning Points* - encouraging schools to target youth early on to help them grow, hire experts in working with middle school students and develop teaching teams. Middle schools are organized into several small student learning groups for core courses. Each student group has their own team of core teachers that collaborate on instruction (Tonso, Jung & Colombo, 2006). Through teacher collaboration, they gained power to make decision about adapting lessons to fit their group of students (Tonso, Jung & Colombo, 2006).

Unclear School Librarian Expectations

Although the librarian's role has been defined by AASL (2018), not all school districts' job descriptions match these prescribed roles. A recent study by Elkins (2018) compared different school librarian job descriptions to the AASL standards in Florida and found many differences. It was noted that many job descriptions were created by administration and contained unclear roles that may be in conflict with the AASL standards (Elkins, 2018). School administrators' approval of librarians is critical for their programs to be successful (Shannon, 2012). With different expectations from administration and AASL, it creates difficulty in school librarians ensuring they have the necessary training for the job. This can also add to decreased job performance and satisfaction (Elkins, 2018) which may impact the ability to collaborate with classroom teachers. Unclear job descriptions may also result in confusion as to whose role it is to teach information literacy skills. College faculty reported the same unfamiliarity of how to define information literacy skills as well as who should and how to teach them (Saunders, 2014). Given teachers' limited understanding of information literacy skills and the data showing the positive impact of learning these skills on academic performance, the need for collaboration between teachers and school librarians could not be stronger.

Collaboration: Librarian and Classroom Teacher

Collaboration is often described positively using traits versus a definition (Howard 2010; Woodward, 2012; Jao & McDougall, 2016; Yuan & Zhang, 2016). The traits often include co-teaching, peer coaching, supporting each other and working together to reach a common goal (Howard, 2010; Jao & McDougall, 2016; Yuan & Zhang, 2016). Yuan & Zhang (2016) noted that it includes being open to sharing ideas and finding ways to improve instruction. Instead, schools need to have collaboration over cooperation, meaning both the classroom instructor and the school librarian learn from each other, motivate and hold each other accountable to improve student learning (Jao & McDougall, 2016).

Developing collaboration in secondary schools has challenges. One study found that teachers reported higher satisfaction with their collaborative partner if they were able to select who they worked with (Krammer, Rossman, Gastager & Gasteiger-Klicpera, 2018). However, it was mentioned that higher satisfaction did not necessarily mean better results and it can be difficult to schedule (Krammer et al., 2018). Schools may also face difficulty in developing collaboration due to conceptual difference among what is believed to be the role of teachers and school librarians, attitudinal differences regarding what collaboration is as well as professional challenges of school staff lacking the knowledge of how to collaborate (Yaun & Zhang, 2016). If classroom teachers believe they lack knowledge of what information literacy skills are they may have school librarians take the topic entirely versus collaborating on how to teach and integrate the skills with content (Saunders, 2014). Despite these obstacles, Branch (2006) stated collaboration may result in positive improvements in lessons that may lead to greater understanding of the material.

Development of a collaborative culture requires specific items. Those working together must trust each other and be committed to success (Jao & McDougall, 2016). It may help to focus on student work and empirical evidence of improved learning in order to overcome personality issues (Jao & McDougall, 2016). It is important for everyone collaborating to have meaningful roles that use their strengths (Jao & McDougall, 2016). Logistically, allowing for weekly time to collaborate in a professional learning community (PLC) versus a one-day professional development day can be more successful (Howard, 2010; Jao & McDougall, 2016). The amount of support the teachers received for collaboration during student teaching and their first year of teaching greatly impacted how frequently collaboration occurred (Moreillon, 2008). A study by Montiel-Overall and Hernandez (2012) of elementary teachers and school librarians found that providing professional development on collaborative development of objectives and lessons helped foster more co-

planning collaboration. A study in California also found that open communication, flexible scheduling, established goals, and dedicated curriculum time increased collaboration (Martin, Garcia, & McPhee, 2012). Finally, collaborative groups need to have common goals, high expectations, resources, willingness to be flexible, risk-taking behavior, and support from administration to be successful (Jao & McDougall, 2016; Moreillon, 2013).

Methodology

A quantitative survey was utilized to study teachers in secondary schools in North Dakota. The survey administered is similar to the study previously used (Crary, 2019) but includes additional questions as well as an expanded population. A similar survey was used with expanded questions in order to address the previous limitation of too small of a population as well as to include rural teachers. The study included 404 participants out of a possible population of 2,685 for a sample size of 15.05%. who teach grades 6-12 (ages 11-18) across North Dakota. The participants included 293 females and 108 males. Participants included teachers with bachelor’s degrees (N=206) and advanced degrees (N=197) who teach core subjects of math, science, English and social studies (N=197), non-core subjects of foreign language, Physical Education and Health, Fine Arts, and Career and Technical Education (N=137) and both (N=70) and who teach middle school grades 6-8 (N=62), high school grades 9-12 (N=105) and both (N=206). As in the previous study procedures, an email was sent to each principal for middle schools and high schools, however, an email was also sent to each superintendent, requesting they forward a recruitment email to the teachers in their school district, so they could choose to participate (Crary, 2019).

The survey instrument consisted of 54 items. The first 11 items gathered demographic information (Table 1) from the participants; gender, age, level of education, subject area taught, years of teaching experience, organization and size of their district and if they have a school librarian. The last three questions are new to the survey. In addition, three new questions ask about familiarity with information literacy skills, how often either they or a school librarian teach these skills. Openness to change was measured through the use of four subscales.

Findings

Table 1. Participant Survey: Participant Demographic Information.

Characteristics	N	%
Gender		
Male	108	26.9
Female	293	72.9
Other	1	.2
Highest Level of Education		
BA/BS	206	51.1
MA/MS/M.ED/ED.S	197	48.9
Major Subject Area Teaching Assignments		
Core Subject	197	48.8
Non-Core Subject	137	33.9

Crary		Secondary Teachers' Perceptions
Both ^a	70	17.3
Grade Level Taught		
Middle School	62	16.6
High School	105	28.2
Both	206	55.2
High School Grades		
7-12	91	22.6
9-12	306	75.9
10-12	6	1.5
Size of District		
Less than 100	12	3.0
101-500	184	45.5
501-1,000	58	14.4
1,001-5,000	91	22.5
More than 5,001	58	14.4
Does your school have a LMS or School Librarian		
Yes- Full-time	314	77.7
Yes- Part-time	73	18.1
No	14	3.5
Other	3	.7
What is your familiarity with the Information Literacy Definition		
Unfamiliar	78	19.5
2	57	14.2
3	53	13.3
4	72	18.0
5	51	12.8
6	49	12.3
Familiar	40	10.0
How often do you incorporate Information Literacy Skills into your class?		
Never	140	35.1
Yearly	51	12.8
Each Semester	86	21.6
Quarterly	122	30.6
Do you have a school librarian in your class to present Information Literacy Skills?		
Never	277	68.9
Yearly	47	11.7
Each Semester	34	8.5
Quarterly	44	10.9

a. Some participants teach in more than one subject area

b. Core Subjects includes English Language Arts, Mathematics, Science and Social Studies

c. Non-Core Subjects includes all courses not included in core subjects

d. Grade Level Taught Subjects may be part of multiple grades

Analysis of variance (ANOVA) statistics were used to test if there were statistically significant differences between two or more groups' means such as age, subject taught, years of

experience, and grade(s) taught. A *t*-test was used for those variables with only two groups with enough responded to test such as gender and education. Correlation statistics helped to determine the relationship between two different constructs. Finally, multiple linear regression was used to determine what combinations of factors best predict teacher perceptions of school librarians for teaching information literacy skills.

Data Analysis

Test of Group Differences. Independent sample *t*-tests were conducted to compare the different constructs for gender (male and female) (Table 2). There was a significant difference as females were more open to change, were in higher agreement that the classroom teacher needs to collaborate with the school librarian and were more impacted by how information was gathered and shared for a change than males.

Table 2. Comparison of Gender on Openness to Change: General, Collaboration, and Communication.

Dependent Variable	Independent Variables				Possible Range	Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>
	Female		Male						
	<i>n</i>	<i>M</i> (<i>SD</i>)	<i>n</i>	<i>M</i> (<i>SD</i>)					
General	29	3.96 (.50)	107	3.78 (.51)	1-5	-.18	-	397	.001
Collaborate (Teacher)	28	4.00 (.65)	103	3.74 (.78)	1-5	-.26	-	381	.001
Communicate (Gather)	26	3.79 (.58)	100	3.59 (.72)	1-5	-.20	-	150.22	.01
Communicate (Share)	25	3.73 (.61)	98	3.53 (.80)	1-5	-.20	-	142.29	.03

Note: differences in group size reflect missing data

Independent sample *t*-tests were conducted to compare the education level (bachelor’s degree and master’s or specialist degree) with the different constructs (Table 3). There was significant difference in those with a masters or specialist degree as they responded with higher agreement that teachers should collaborate with school librarians and were impacted more by how information is gathered for change than those with a bachelor’s degree.

Table 3. Comparison of Education on Collaboration and Communication.

Dependent Variable	Independent Variables				Possible Range	Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>
	BA/BS		MA/MS/ M.ED/ED.S.						
	<i>n</i>	<i>M</i> (<i>SD</i>)	<i>n</i>	<i>M</i> (<i>SD</i>)					
Collaborate (Teacher)	19	3.86 (.74)	192	4.00 (.65)	1-5	-.14	-	383	.04
Communicate (Gather)	18	3.67 (.62)	183	3.81 (.63)	1-5	-.13	-	366	.04

Note: differences in group size reflect missing data

Independent sample *t*-tests were conducted to compare the high school composite (grades 7-12 and grade 9-12) with the different constructs (Table 4). There was significant difference for those in a 7-12 grade building as they responded with higher openness to change in general than those in a 9-12 grade school and those in 9-12 grade schools were impacted more by how information was gathered for change than 7-12 grade schools.

Table 4. Comparison of High School Grades on Openness to Change: General and Communication.

Dependent Variable	Independent Variables				Possible Range	Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>
	<i>n</i>	7-12 <i>M</i> (<i>SD</i>)	<i>n</i>	9-12 <i>M</i> (<i>SD</i>)					
General	91	4.01 (.51)	304	3.88 (.51)	1-5	.13	2.16	393	.03
Communicate (Gather)	81	3.63 (.62)	280	3.78 (.60)	1-5	-.15	-1.99	359	.05

Note: differences in group size reflect missing data

Grades 10-12 not included due to size

An independent sample *t*-test was conducted to compare grade level taught (only teaching middle or high school and teaching both levels) with the different constructs (Table 5). There was significant difference for those teaching in middle or high school as they felt more impacted by how information was gathered and shared for change than those teaching in both levels.

Table 5. Comparison of Teaching Middle or High school Only or Both Levels on Communication.

Dependent Variable	Independent Variables				Possible Range	Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>
	<i>n</i>	Middle or High <i>M</i> (<i>SD</i>)	<i>n</i>	Both <i>M</i> (<i>SD</i>)					
Communicate (Gather)	151	3.81 (.65)	191	3.66 (.62)	1-5	.16	2.2 7	340	.02
Communicate (Share)	147	3.79 (.66)	183	3.59 (.70)	1-5	.20	2.6 7	328	.01

Note: differences in group size reflect missing data

ANOVA. An ANOVA was conducted to compare the main effects of grade level taught (middle school, high school, or both) and the effect on teacher expectation. An ANOVA showed that the effect of teaching middle school or high school on teacher expectations was significant, $F(2,341)=3.01$, $p<.05$. Post-hoc *t*-tests using a Tukey alpha adjustment revealed middle school teachers ($M=4.10$, $p<.045$, $SD=0.40$) had more expectations on the teacher to teach information literacy skills than high school teachers ($M=3.90$, $SD=0.47$).

An ANOVA was conducted to compare the main effects of subject taught (core, non-core, or both) and the different constructs (Table 6). Those teaching both core and non-core courses believed more strongly that school librarians should collaborate with classroom teachers and they had higher expectations for school librarians.

Table 6. Means Standard Deviations, and One-Way ANOVA for the Effects of Subject Taught on Librarian Collaboration and Librarian Expectations

Variable	Core (C)		Non-Core (NC)		Both (B)		F*	η^2	Tukey's HSD
	M	SD	M	SD	M	SD			
Librarian Collaboration	3.76	0.70	3.75	0.73	4.02	0.57	4.09 (2, 382)	.02	C<B*
Librarian Expectation	4.01	0.49	4.14	0.44	4.27	0.47	7.99 (2, 366)	.04	C*, NC**<B

* $p < .02$, ** $p < .052$

An ANOVA was conducted to compare the main effects of having a school librarian (full-time, part-time, or none) and the effect on impediments to change. An ANOVA showed that the effect of having a full-time school librarian and either a part-time school librarian or no librarian on impediments to change was significant, $F(3,381)=9.58, p<.000$. Post-hoc *t*-tests using a Tukey alpha adjustment revealed that those with a full-time librarian ($M=2.53, p<.00, SD=.62$) experience less impediments than those with a part-time librarian ($M=2.84, SD=.52$). Post-hoc *t*-tests using a Tukey alpha adjustment revealed that those with a full-time librarian ($M=2.53, p<.001, SD=.62$) experience less impediments than those without a librarian ($M=3.09, SD=.47$).

An ANOVA was conducted to compare the main effects of incorporating information literacy skills in class (quarterly, each semester, yearly, and never) and the different constructs (Table 7). Overall, classroom teachers incorporating teaching information literacy quarterly were more open to change and believed more strongly it was their role along with school librarian to teach these skills than those who never teach information literacy skills.

Table 7. Means Standard Deviations, and One-Way ANOVA for the Effects of Incorporating Information Literacy in Instruction on Openness to Change, Teacher and Librarian Collaboration, Librarian and Teacher Expectations

Variable	Never (N)		Yearly (Y)		Semester (S)		Quarterly (Q)		F*	η^2	Tukey's HSD*
	M	SD	M	SD	M	SD	M	SD			
Openness to Change	3.82	0.52	3.99	0.40	3.90	0.49	4.00	0.51	3.29 (3, 393)	.02	N<Q
Teacher Collaboration	3.72	.69	3.88	.50	4.01	.71	3.92	.70	6.95 (3,377)	.05	N<S,Q
Librarian Collaboration	3.68	.73	3.63	.60	3.88	.65	3.95	.70	4.47 (3,376)	.03	N,Y<Q
Librarian Expectation	4.00	.46	4.07	.38	4.10	.50	4.21	.48	4.17 (3,360)	.03	N<Q
Teacher Expectation	3.81	.56	3.98	.38	4.00	.47	4.16	.42	10.45 (3,359)	.08	N<Q

* $p < .02$

An ANOVA was conducted to compare the main effects of having a school librarian teach information literacy skills (quarterly, each semester, yearly, or never) and the effect on librarian collaboration with the classroom teacher (Table 8). Classroom teachers who have a school librarian teach information literacy skills quarterly had higher expectations for both the classroom teacher and school librarian as well as believed more strongly it was the role of both to collaborate than those who never invite the school librarian in. In addition, those that invite the school librarian into the classroom at least once year or more are impacted less by impediments than those who never invite the school librarian in.

Table 8. Means Standard Deviations, and One-Way ANOVA for the Effects of a School Librarian teaching Information Literacy in Instruction on Teacher and Librarian Collaboration, Impediments, Librarian and Teacher Expectations

Variable	Never (N)		Yearly (Y)		Semester (S)		Quarterly (Q)		F*	η^2	Tukey's HSD**
	M	SD	M	SD	M	SD	M	SD			
Teacher Collaboration	3.85	0.66	4.04	0.64	4.05	0.94	4.15	0.71	3.42 (3, 381)	.03	N<S,Q
Librarian Collaboration	3.69	0.68	3.87	0.70	4.15	0.73	4.10	0.59	8.17 (3, 380)	.06	N<Q
Impediments	2.72	0.58	2.39	0.56	2.37	0.72	2.28	0.70	8.67 (3, 380)	.06	Y,S,Q<N
Librarian Expectation	4.05	0.45	4.09	0.51	4.17	0.51	4.31	0.42	3.97 (3, 364)	.03	N<Q
Teacher Expectation	3.92	0.51	4.05	0.39	4.09	0.51	4.22	0.42	5.57 (3, 359)	.04	N<Q

* $p<.02$ ** $p<.04$

Correlations. (Table 9). Several weak to strong correlations were revealed in the data, with several being interesting. A strong positive correlation was revealed between school librarian and teacher collaboration as well as between school librarian and teacher expectations. Furthermore, the positive correlation was strong between teacher collaboration and expectations as well as for librarian collaboration and expectations. Finally, it was surprising that a negative correlation was revealed between familiarity of information literacy skills and experience impediments.

Table 9. Zero-Order Correlations for Variables in Study.

	1	2	3	4	5	6	7	8	9
General Collaboration (Librarian)	-								
Collaboration (Teacher)	.14**	-							
Impediments	.30**	.53**	-						
Expectations (Librarian)	-.29**	-.10	-.24**	-					
Expectations (Teacher)	.11*	.51**	.44**	-.03	-				
Gather Communication	.25**	.36**	.50**	-.18**	.56**	-			
Share Communication	.11*	.20**	.25**	-.09	.15**	.27**	-		
Familiarity Info Lit Skills	.16**	.17**	.20**	-.10	.18**	.34**	.69**	-	
	.12*	.14**	.24**	-.14**	.16**	.24**	.42	.01	-

* $p<.05$; ** $p<.01$

Multiple Regressions. A multiple regression analysis (Table 10) was conducted in which teacher collaboration, gender and impediments were predictors, along with the other constructs of librarian collaboration, gathering information, sharing information, and librarian expectations for teaching information literacy skills as covariates confirmed the initial hypothesis. A significant regression equation was found ($F(7,342)=8.71$, $p<.00$) with an R^2 of .17. A stronger openness to change was associated with female teachers, a greater belief that teachers need to be open to collaborate and less impediments blocking collaboration beyond the other covariates.

Table 10. Teacher Collaboration, Impediments to Change, and Librarians' Expectations as Predictors of Openness to Change.

Openness to Change

Predictors	<i>B</i>	<i>SE</i>	β
Openness to Change: Collaboration (Librarian)	-.02	.05	-.03
Openness to Change: Collaboration (Teacher)	.17	.05	.23***
Openness to Change: Impediments	-.17	.04	-.20**
Teacher Expectations (Librarian)	-.08	.07	-.07
Teacher Expectations (Teacher)	.12	.07	.11
Openness to Change: Gather Information	-.06	.06	-.08
Openness to Change: Share Information	.08	.05	.11
Gender	.14	.06	.12*

* $p < .02$; ** $p < .000$; *** $p < .001$

Discussion

Research question 1: What differences exist among teachers regarding librarian roles in information literacy skills?

According to the data, the organization of schools impacts openness to change and teacher expectations. Middle school teachers reported that they believed teaching information literacy skills was the teacher's role more than high school teachers. This may be due to the organization of middle schools into collaborative teams that are focused on adapting lessons to the needs of their students (Tonso, Jung & Colombo, 2006) regardless if the skills are in their content standards. Schools organized grades 7-12 are more open to change than those organized as 9-12 according to the data. The expanded grades may result in increased adaptability to change and a culture of community to ensure all the tasks are completed. The data showed that all school districts larger than 100 students were more open to change. The small district could be less open to change as they already teach several different courses, sometimes in different content areas, and most likely have other duties assigned such as coaching and supervision that overwhelm them, so they view change as requiring more time than they have.

Time and availability of resources impacted teacher perceptions of their role for teaching information literacy. Teachers who teach both core and non-core courses placed more emphasis on the librarian's role in collaboration and teaching information literacy skills. These teachers spend time prepping for their different classes and working with multiple departments leading to the need for the librarian to reach out for collaboration on information literacy skills as these teachers perceive they do not have the time. Teachers responded that they were most impacted by the number of courses they teach and grade, reinforcing the need for a school librarian to help with instruction of information literacy skills. The data indicated that schools with a full-time school librarian experienced the least impediments to change as compared those who have a part-time or no librarian. The results reinforce the need for a school librarian with clear roles of supporting the classroom teacher as noted by Elkins (2018).

Teachers who either teach information literacy skills themselves or invite the school librarian into teach them quarterly were more open to change and had higher expectations of themselves and

the librarian to teach these skills. These results reinforce the findings by Krammer et al. (2016) that attitudes by the staff on collaboration have a significant impact. The high expectations on the teacher and librarian show the classroom teacher mindset of working in teams to teach information literacy. Teachers who taught information literacy lessons quarterly were more open to change, teacher and librarian collaboration and had high expectations for teachers and librarians to teach information literacy skills than those who never taught these lessons. Those teaching it quarterly have seen the value of these skills in student achievement, so they put in the work to learn to embed these skills, reinforcing the impact knowledge has on how to collaborate (Fluck & Downden, 2013; Krammer et al. 2016).

Research Question 2: How does openness to change predict teacher expectations for teaching information literacy skills?

Several constructs revealed strong positive correlations indicating that these areas are key areas to view for predicting teacher expectations for teaching information literacy. The results reinforce the findings that attitudes by the staff on collaboration have a significant impact (Krammer et al. 2016). Teachers who are more open to change were positively correlated with all constructs except impediments which had a negative correlation. These teachers have a mindset of being open to change resulting in openness to collaboration and teaching skills outside of their perceived content area. Teachers who believed that collaboration with the school librarian is the classroom teacher's role had strong positive correlations in their belief librarians are responsible for collaboration and teaching information literacy. Teachers who were most open to change also experienced less impediments and were female. While these common characteristics do not explain what the expectation is for teaching information literacy, it does indicate who is more open to collaborate which is helpful in creating collaborative groups.

Implications

This study's findings reveal several key points for initiating a change in a school to teach information literacy skills. Fullan (2007) noted that for initiating a change clear, consistent, and effective training from administration is required. The impediments construct was negatively correlated with the other constructs which confirms that administration needs to be cautious about extra teaching duties beyond what is required for teaching their courses. In addition, administration should be aware of impediments when implementing a change in order to provide support to offset these impediments. It is essential that administration provide meaningful professional development on information literacy skills that is sustained to increase familiarity by classroom teachers. The positive correlations emphasized the need for a culture of community and learning in order to foster the collaborative environment.

Fullan (2007) stated that initiating a change can begin at many different points including administration or teachers. The data would support that those with an openness to change will embrace teaching information literacy skills embedded in their lessons from the bottom-up as they see student academic growth. Those that are less open to change, will require more support. It is important for administration to provide these opportunities to learn, make their expectations clear and provide support to struggling teachers. The support could be given in a multitude of ways including more targeted professional development or a substitute to provide time for collaboration and observations of other teachers who strongly collaborate to teach information literacy skills. Regardless, administration does need to be transparent about gathering information from staff on the initiative to collaborate as well as share how the initiative will occur. Teachers reported

preferring direct conversations in a faculty or department meeting than through email or department chairs. Those teaching in only middle or high school were more impacted on how information is gathered and shared than those teaching between the two settings. In initiating collaborative groups, administration should ensure group composition that includes both females and teachers were advanced degrees in light of their belief collaboration is their role.

Limitations and Future Research

This research has several limitations. However, how that professional development is constructed is not defined. The study is also limited in addressing how a culture of collaboration is created that will foster classroom teachers and school librarians collaborating instead of cooperating. Finally, it is unclear why females were more open to change, responded stronger that both the teacher and the librarian have the role of collaboration and were more concerned with how information was gathered and shared for change than males. To address the limitations, future research should focus on perceived gender roles in education. Future research should also focus on implementation of professional development that informs classroom teachers about what information literacy skills are and why they are needed as well as fosters collaboration with the school librarian in the development of the lessons.

Conclusions

Students need information literacy skills to be successful in K-12 and post-secondary education. Data reveals these skills are not being taught or are infrequently taught. Secondary education needs to teach these skills through collaboration between the librarian and the teacher for authentic instruction that incorporates both the skills of the school librarian as an instructional leader and the classroom teacher as the content expert. In order for this to occur, teachers need to have less impediments that consume their time to collaborate and administration needs to establish meaningful professional development to teach classroom educators about the importance of information literacy skills. Finally, administration needs to empower teachers through this initiative to help it be effective.

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Author Note

Dr. Sarah L. Crary (sarah.crary@ndsu.edu) is currently is an assistant professor at North Dakota State University in the Educational Leadership program. She earned her Ph.D. from the University of North Dakota. Dr. Crary has been a K-12 educator for over 20 years focusing on high school ages 14-18. Her experience includes being a parochial school principal and public-school classroom teacher for social studies courses from general education to Advanced Placement and Dual Credit, serving on numerous district level committees including accreditation and curriculum. Dr. Crary's research interests include information literacy, collaboration, and leadership.