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Literacy Teachers' Interactions with Instructional Leaders: Students Reap the Benefits

Gary Alger
University of Bridgeport

This paper examines the interactions between literacy teachers and instructional leaders and their effects on students' reading achievement gains. The results of this study have implications for how instructional leaders work with colleagues and how these relationships may impact student achievement.
Forty-two suburban elementary and middle school literacy teachers reported the frequency and helpfulness of interactions with their instructional leaders. Findings indicate that curricular and assessment interactions occurred more frequently and were more helpful than instructional interactions. Students of these teachers who reported the most frequent and helpful interactions had significantly higher reading achievement gains than students of teachers who reported the least frequent and least helpful contacts.

Leadership is a critical component of all school improvement efforts. The evidence from the literature supports the position that effective leaders have an indirect but powerful influence on a school's capacity to enhance student achievement (Muijs and Harris, 2003). Effective leadership builds and sustains an organizational culture that focuses on continual improvement of educational programs, teachers' capabilities and skills, and student learning. (Fullan, 2001; Sergiovanni, 2001).

Traditional school leadership places this authority and influence in the principal or a small team of administrators in the main office and this 'great man' theory of leadership continues to be the norm (Day, et al., 2000). However, the challenges facing schools today, particularly the legal mandates to improve student achievement, seriously question traditional approaches to school leadership and the principal as the primary instructional leader. As a result, educators are proposing the dispersal of leadership authority within a school and that teachers assume significantly greater roles in school improvement efforts (e.g., Harris, 2003; Fullan, 2001; Lambert, 1998; Leithwood et al., 1999; Sergiovanni, 2001). Such dispersal has the potential to build a professional learning community, motivate teachers, improve the quality of teaching in the classroom and positively impact student achievement.

Although schools are beginning to develop teachers as leaders, little is known about their interactions with peers and the impact of those communications on student achievement. In a recent review of the literature on the benefits of teacher leadership, Muijs and Harris (2003) cite only one study that investigated the effect of teacher leadership on students; that study found a positive effect on student engagement (Leithwood and Jantzi, 1998). Therefore, by using data collected from one school district that implemented a teacher leadership program, this study identifies the nature of interactions between teachers and their peers with instructional leadership responsibilities. More importantly, the study analyzes the effects of those

interactions on the reading achievement gains of their students.

This paper will provide empirical data regarding the working relationships between literacy teachers and instructional leaders and how those interactions impact student outcomes. After a review of the relevant literature review, the research methodology will be discussed in considerable detail including data sources, procedures, and data analysis techniques. The findings are presented followed by a discussion of the results and implications for current practice and future research.

Literature Review

The literature review focuses on four major topics, including the definition of teacher leadership, the role of teacher leadership in developing a professional learning community, distributed leadership theory and teacher leadership, and barriers to teacher leadership.

Defining Teacher Leadership

Experts vary in their definitions of teacher leadership because they have different conceptual perspectives of the roles and functions of such individuals. Katzenmeyer and Moller (2001) suggest that teacher leaders may assume one of three roles. They may lead by participating in decision-making processes, by managing operational tasks, or by facilitating teacher and student growth.

Some teacher leaders work as partners with school administrators in the decision making process. They serve as members of site-based management teams, school improvement teams, committees, or other groups that make important decisions for the school and/or district. Other teacher leaders assist school administrators with the managerial operations of a school, serving in middle management roles such as department heads or members of a task force. However, the third function of teacher leadership, facilitating teacher and student growth, is of particular interest to this study.

Teacher leaders who facilitate the growth of their colleagues and students assume roles such as mentors, coaches, trainers, and curriculum specialists. These individuals interact with their peers both in and out of the classroom to improve pedagogical knowledge and skills and to help them transfer that to classroom practice. The ultimate goal of these interactions is to promote student learning.

Day and Harris (2003) described four dimensions of teacher leaders and these have application to individuals who assume roles as facilitators of peer growth and student learning. The first dimension involves working with teachers so they are able to understand principles of school improvement and transfer new knowledge into classroom practice. Teacher leaders may serve as a personal coach to a teacher, providing individual consultation and working side by side in the classroom to assist a peer with the implementation of a specific strategy related to a school improvement effort. The second dimension entails participatory leadership so that all teachers feel ownership and commitment to change. The teacher leader may build support among peers for specific school improvement initiatives and foster collaborative working relationships to accomplish the school goals through study groups or team discussions.

The third dimension is the mediating role of teacher leaders. These individuals are experts in their field and sources of valuable information or other resources. Teacher leaders are able to draw upon their own knowledge, the expertise of peers, or network with others to seek external assistance related to school improvement initiatives. The fourth dimension is building close, professional relationships with individual teachers which results in mutual learning. The collaborative, collegial relationships which teacher leaders help forge can significantly contribute to the formation of a professional learning community. Schools that operate as a professional learning community are more likely to accomplish school improvement goals and improve student learning (Hargreaves, 2002).

Teacher Leaders and Professional Learning Communities

School leaders can initiate improvement, accomplish goals, and sustain a process of continuous development more efficiently and effectively if the school functions as a professional learning community (Morrissey, 2000). According to Hord (1995), these communities have five characteristics, including shared decision-making, common school vision focused on student learning, shared learning and guided practice, peer review and feedback, and supportive school conditions. The supportive conditions include time for staff interactions, open communications that support the improvement efforts, and collaborative relationships among staff .

Collaboration with peers is at the heart of the professional organization and teacher leaders can play an important role in encouraging and sustaining these interactions among colleagues (Harris, 2003). Frequent and meaningful exchanges between teachers build a climate of cohesiveness in which effective working relationships are established. Teacher leaders can be empowered by school administrators to facilitate the development of these relationships. Master teachers who assume these roles can lead and coordinate professional training programs, chair group problem solving sessions around instructional problems, lead discussions about best practices in the classroom, coach individual teachers, and generally

encourage staff interactions that focus on issues related to the teaching and learning process (Frost & Durrant, 2003). According to Lambert (1995), these interactions enable staff to construct meaning and knowledge together, rather than relying on outside pressures to change.

Although collaborative relationships are essential to the professional learning community, another characteristic proposed by Harris and Lambert (2003) is that teachers accept joint responsibility for the outcomes of their work. Related to this concept of accountability within the professional learning community, teacher-researchers have proposed that monitoring and evaluating student achievement and teaching behaviors are essential components of school leadership (Copland et al., 2002). These activities include regularly reviewing student work and achievement data, observing teachers in the classroom on a scheduled basis, facilitating discussions and leading professional development to promote best instructional practices, establishing student performance goals, and developing annual plans for improvement. Teacher leaders who assume roles as instructional coaches, mentors, and curriculum specialists can facilitate activities, which promote accountability of the professional learning community.

Distributed Leadership Theory and Teacher Leadership

Distributed leadership theory is a democratic and collective form of leadership that proposes the decentralization of the power and authority of the school principal. According to Muijs and Harris (2003), distributed leadership is helpful in clarifying the meaning of teacher leadership and how it functions within the school environment.

First, distributed leadership engages teacher leaders in a process where they work together to guide and mobilize their peers in the instructional change process. They participate actively with peers, supporting and coaching them in order to accomplish school goals involving pedagogical improvement. Second, because distributed leadership involves multiple individuals in leadership roles, the work is accomplished through the interactions of several teacher leaders and school administrators. Finally, it suggests interdependency rather than dependency in terms of responsibility. The teacher leaders and principal assume different kinds of roles and rely on each other in order to accomplish the organization's goals.

The engagement of teacher leaders as central players in the change process, the increase in interactions and the interdependency between teacher leaders and administrators cause traditional lines of hierarchical authority to blur and prompt the formation of new relationships. "Whatever specific definition of teacher leadership one chooses to adopt, it is clear that its emphasis upon collective action, empowerment and shared agency is reflected in distributed leadership theory" (Muijs and Harris, 2003, p. 440).

Barriers to Teacher Leadership

Although the theoretical foundations for developing teacher leaders are sound, implementing these changes in practice are quite difficult with many barriers to overcome (e.g., Barth, 2001; Hargreaves, 1999; Little, 1990; Smylie, 1992). There are strong cultural forces in schools that are counter to the development of teacher leaders and make it more difficult for middle leaders to assume new roles. Teaching is often viewed as an independent, autonomous and private profession. Teacher leaders who attempt to engage peers in collaborative activities such as discussing and sharing instructional strategies, reflecting and offering feedback on classroom performance, and training on best practices may find resistance to such efforts from staff who want to maintain control over their professional practice. Teacher leaders are often hesitant to engage in such activities unless they are invited to do so by team members (McGarvey and Marriott, 1997).

Teacher leaders may be perceived as assuming positions that differentiate their roles within the organization and this can create conflict with some peers, particularly those who believe in equality of professional status (Hart, 1990). Teacher leaders often hesitate to monitor the work of peers and their students because it challenges the professional norms of equality and privacy and may even be viewed as an abrogation of trust. Lieberman et al. (2000) found that egalitarian ethic of colleagues was one of the main barriers perceived by teacher leaders, and often left them feeling isolated from colleagues.

Although Adey (2000) indicated growing acceptance for teacher leaders who assume roles as subject area specialists to focus attention on monitoring and evaluation activities, some do not want to get themselves into a position where they appear to be judging the work of a peer (Glover et al., 1998b). These teacher leaders acknowledge that collegiality is an aspiration rather than a reality. They experience conflict between their need to monitor teacher performance and the desire to promote collegiality and trust among unit members (Wise, 2001).

Teacher leaders also indicate that there is not enough time to fulfill these additional job responsibilities. Individuals in these positions report they lack the time to monitor and evaluate student achievement, support teacher efforts in the

classroom, facilitate reflection on instructional practices, and generally work with staff to improve teacher and student performance (Brown et al, 2000; Glover et al, 1998a; Wise and Bush, 1999). Ovando (1994) found that time for teacher leaders to perform their work was a critical factor to the success of teacher leadership programs.

Research Methodology

Data Sources

Four data sources were used in this study. Participants included the literacy teachers in a suburban K-12 school district in the northeastern region of the United States and the students assigned to them. Instruments included The Teacher-Instructional Leader Interaction Questionnaire and the Degrees of Reading Power (DRP) test (Touchstone, 1995).

Participants. Forty-two literacy teachers, grades two to eight, and the students assigned to them over a two-year period constituted the subjects of this investigation. Teachers and students in grades Kindergarten and first grade were not included because of the lack of reading achievement data at these levels. Characteristics of the participants are presented in Table 1.

The participants were all full-time teachers in a suburban K-12 school district in the northeastern region of the United States with an enrollment of approximately 3,000 students. The district consisted of two elementary schools, one middle school and one high school. This particular district was selected for study because it recently implemented a teacher leadership initiative to facilitate the development of a professional learning community and to improve the reading achievement of students. In 2001, central office administrators, school board members, building principals, teachers and parents participated in a strategic planning process. An outcome of that process was the establishment of a teacher leadership role, Curriculum Resource Teacher (CRT), as part of a district-wide goal to increase teacher collaboration and to improve student achievement.

The CRT was a subject leader position but routine administrative and managerial tasks were minimized. One CRT was employed in each elementary school and one in the middle school to help the teachers understand and implement the district's literacy curriculum, to promote the use of best practices in literacy instruction, and to utilize student assessment data to monitor and improve student learning. The CRT had no assigned classroom duties so that the individual would have adequate time to consult with peers on literacy matters, work within their classrooms, monitor student achievement, and research and develop curricular, instructional and assessment-related strategies.

Table 1

Characteristics of the Participants

	N	%
Total	42	
Grade taught:		
Elementary (2-5)	30	71.43
Middle (6-8)	12	28.57
Highest Degree:		
Bachelors	17	40.48
Masters	25	59.52
Total teaching experience:		
1-5 years	22	52.38
6-15 years	7	16.67
16 or more years	13	30.95
District Teaching experience:		
1-5 years	28	66.67
6-15 years	3	7.14
16 or more years	11	26.19

Instrument one: The teacher-instructional leader interaction questionnaire.

I developed the Teacher-Instructional Leader Interaction Questionnaire (see Figure 1) to collect data regarding the frequency and helpfulness of the interactions between the elementary literacy teachers and the instructional leaders. The DRP was used to measure each student's level of reading achievement.

The Teacher-Instructional Leader Interaction Questionnaire measured three types of interactions- curricular, instructional and assessment-related. The nineteen items on the questionnaire were based on the responsibilities of the CRT as outlined in the district job description and were categorized as either a curricular, instructional or assessment-related interaction. The items and their category were validated by the instructional leaders. Each type of interaction was defined as follows:

Curricular Interactions: reviewing student performance standards; selecting materials for the literacy program; coordinating the literacy program within each grade and between schools; and reviewing the literacy program philosophy and major components of the program.

Instructional Interactions: reviewing how to implement a balanced literacy program in the classroom; planning literacy lessons, units of study, or long-range plans; developing and sharing strategies to improve student achievement; assisting teachers to fulfill responsibilities related to their teacher evaluation plan; obtaining input on planning district professional development activities; obtaining feedback on professional development activities conducted in district; discussing needs of specific students; visiting teachers' classrooms and giving feedback on instructional practices; discussing and sharing conferences or workshops outside of the district; and informing staff about regional professional development opportunities.

Assessment-related Interactions: developing and revising literacy assessments to evaluate student achievement; reviewing student performance data of the school; reviewing student performance data of the students in the classroom; educating staff regarding the content of state-wide assessments; and sharing/discussing ideas how to improve student performance on mandated tests.

Teachers rated how frequently they interacted with their CRT using a 5-point scale including: (1) never, (2) at least once a year, (3) at least once a marking period, (4) at least once a month, and (5) at least once a week. Subjects were also asked to indicate how helpful those interactions were to them on a 5-point scale, including (1) not helpful, (2) somewhat helpful, (3) not sure, (4) helpful, and (5) very helpful. A frequency score and a helpfulness score for each type of interaction was obtained for each subject by averaging the appropriate item responses. A combined frequency/helpfulness score was computed for each type of interaction by totaling the appropriate frequency and helpfulness means.

The internal reliability coefficients for the curricular, instructional and assessment-related items for this sample are displayed in Table 2 for frequency and Table 3 for helpfulness. Cronbach alpha reliability coefficients for frequency ranged from .79 for curricular interactions to .89 for instructional interactions. Regarding helpfulness, reliability coefficients were .91 for curricular and assessment interactions and .95 for instructional interactions. Based on these analyses, the instrument was considered adequately reliable for purposes of this study.

Table 2

Reliability Coefficients for Frequency of Interaction

Type of Interaction	No. of Items	Alpha
Curricular	4	.79
Instructional	10	.89
Assessment-related	5	.86

Table 3

Reliability Coefficients for Helpfulness of Interaction

Type of Interaction	No. of Items	Alpha
Curricular	4	.91
Instructional	10	.95
Assessment-related	5	.91

Instrument two: The degrees of reading power (DRP). The Degrees of Reading Power (DRP) was used to measure reading achievement of students. The DRP is a test of reading comprehension using the cloze technique. It assesses a student's ability to comprehend the meaning of increasingly difficult text; the ability to analyze, evaluate and extend the ideas that are presented; and the size of the student's reading vocabularies (Touchstone, 1995). Each student's raw score was converted to a Normal Curve Equivalent (NCE) score.

Procedure

After gaining the approval of the senior administration of the district, I asked the principal's secretary in each school to distribute The Teacher-Instructional Leader Interaction Questionnaire to all 52 literacy teachers in grades two to eight along with a letter explaining the purpose of the study. Before distributing the questionnaire, the principal's secretary coded each instrument to conduct multiple follow-ups. The codes were also used to match reading achievement data and demographic data to each teacher's questionnaire when it was returned. The reading achievement data consisted of each student's NCE score obtained on a fall and spring

administration of the DRP test. Two years of student data were collected for each teacher. The principal's secretary attached the reading achievement results and teacher demographic data based on personnel records to the appropriate coded instrument of each staff member. Only the principal's secretary had the list of codes and this individual destroyed the list once the data collection period ended to ensure the anonymity and confidentiality of all respondents.

Data Analysis

All data was entered into SPSS v. 11.0 for analysis. For each teacher, demographic data and responses to each item on The Teacher-Instructional Leader Interaction Questionnaire were entered. For each student, fall and spring NCE scores on the DRP, the code number of the teacher, and the teacher's scores from The Teacher-Instructional Leader Interaction Questionnaire were entered.

Three types of analyses were conducted. First, descriptive statistics were employed to describe the frequency and helpfulness of the interactions between the teachers and the instructional leaders. Second, the paired-samples t-test was used to analyze differences in the curricular, instructional and assessment-related frequency and helpfulness means. Third, in order to examine the effect of teachers' interactions with instructional leaders on reading achievement gains of their students, teachers were ranked by their combined frequency and helpfulness scores on The Teacher-Instructional Leader Interaction Questionnaire. Subjects were then assigned to one of four quartiles for each type of interaction to indicate an overall level of contact with the CRT. The top quartile included those teachers who reported the most frequent and most helpful interactions. The bottom quartile consisted of the staff members who reported the least frequent and least helpful contacts. An analysis of variance for repeated measures was used to examine differences in reading achievement between the two groups of teachers, to analyze differences in reading achievement between the fall and spring administrations of the DRP, and to ascertain if there was a significant interaction between the two variables. The interaction indicates differences in the reading achievement gains between the two groups of teachers. An alpha level of .05 was used for all statistical tests.

Findings

The analyses that are reported on in this section include descriptive statistics for the frequency and helpfulness of teachers' interactions, paired-sample t-tests to determine differences in the teachers' interactions, and analysis of variance for repeated measures to examine the interactions between reading achievement and teachers' interactions.

Frequency and Helpfulness of Teachers' Interactions

The distribution of scores, means, and standard deviations for frequency are displayed in Table 4. The descriptive data suggests that teachers vary widely in their interactions with the instructional leaders. Average frequency scores are highest for assessment related interactions (2.63) and lowest for instructional contacts (2.24). Mean frequency scores are all below 3.0, suggesting that contact between CRTs and the typical teacher on any given type of interaction average between at least once a year and at least once a marking period (four marking periods per year). Approximately one-third of the teachers report interacting with their CRTs on an average of between once a marking period and once a week on curricular issues and approximately 38% report the same frequency for assessment-related contacts. Less than 20% report that level of contact on instructional matters.

Table 4

Frequency of Interaction Scores by Type of Interaction

	Frequency of Interaction									
	1.0-1.99		2.0-2.99		3.0-3.99		4.0-4.99		Mean	SD
Type of Interaction	n	%	n	%	n	%	n	%		
Assessment-related	8	19.05	18	42.86	15	35.71	1	2.38	2.63	.80
Curricular	11	26.19	17	40.48	12	28.57	2	4.76	2.56	.74
Instructional	19	45.24	15	35.71	8	19.05	0	.00	2.24	.77

Table 5

Helpfulness of Interaction Scores by Type of Interaction

	Helpfulness Scores									
	1.0-1.99		2.0-2.99		3.0-3.99		4.0-4.99		Mean	SD
Type of Interaction	n	%	n	%	n	%	n	%		
Assessment-related	9	21.43	11	26.19	9	21.43	13	30.95	3.05	1.14
Curricular	13	30.95	6	14.29	9	21.43	14	33.33	2.96	1.25
Instructional	20	47.62	8	19.05	8	19.05	6	14.29	2.45	1.19

Teachers also varied in their perceptions regarding the helpfulness of their interactions with the CRTs. As shown on Table 5, the mean for assessment-related interactions (3.05) is highest and the mean of 2.45 for instructional interactions is the lowest. Approximately one-third of the teachers report that the curricular and assessment-related interactions are helpful or very helpful but only

14.29% indicate this level for contacts on instructional matters.

Differences in Teachers' Interactions

Differences in the frequency and helpfulness of teachers' curricular, assessment-related and instructional interactions with the CRT were analyzed using a series of paired-sample t-tests. The first series of these tests determined if teachers interacted more frequently about curriculum, assessment or instruction. The second series of paired-sample t-tests determined if teachers found some interactions more helpful than others.

Table 6

Paired-sample t-test Results for Frequency of Interaction

Pair	t
Curricular-Instructional	4.67**
Assessment-Instructional	5.29**
Assessment-Curricular	.72

** p < .001

Table 7

Paired-sample t-test Results for Helpfulness of Interaction

Pair	t
Curricular-Instructional	5.88**
Assessment-Instructional	6.58**
Assessment-Curricular	.82

**p<.001

As shown in Table 6, the first set of results indicate that teachers have significantly more contact with CRTs on assessment-related matters ($t = 5.29$, $p < .001$) and curricular issues ($t = 4.67$, $p < .001$) compared to instructional topics. The second series of paired-sample t-tests (see Table 7) reveal that their curricular interactions ($t = 5.88$, $p < .001$) and assessment-related interactions ($t = 6.58$, $p < .001$) with the CRTs are more helpful than their instructional exchanges.

Reading Achievement and Teachers' Interactions

To examine the possible effect of these interactions on students' reading achievement gains, each teacher was assigned to a quartile for each type of interaction based on the sum of the individual's frequency and helpfulness scores. The demographic data for the teachers in the top and bottom quartiles for each type of interaction are shown in Tables 8 to 10. The two groups are similar on these personal variables for each type of interaction.

The combined frequency and helpfulness score means and standard deviations for the top and bottom quartile teachers are displayed in Table 11. The means for the teachers in the bottom quartile are less than half of those in the top quartile, ranging between 3.93 to 4.55 points lower.

Table 8

Characteristics of Top and Bottom Quartile Teachers for Assessment Interactio

	Top Quartile		Bottom Quartile	
Characteristic	n	%	n	%
Total	11		11	
Grade taught:				
Elementary (2-5)	8	72.73	7	63.64
Middle (6-8)	3	27.27	4	36.36
Highest Degree:				
Bachelors	4	36.36	4	36.36
Masters	7	63.64	7	63.64
Total teaching experience:				
1-5 years	5	45.45	4	36.36
6-15 years	2	18.18	3	27.27
16 or more years	4	36.36	4	36.36
District teaching experience:				
1-5 years	6	54.55	5	45.45
6-15 years	1	9.09	2	18.18
16 or more years	4	36.36	4	36.36

Table 9

Characteristics of Top and Bottom Quartile Teachers for Curricular Interactions

	Top Quartile		Bottom Quartile	
Characteristic	n	%	n	%
Total	12		12	
Grade taught:				
Elementary (2-5)	8	66.67	8	66.67
Middle (6-8)	4	33.33	4	33.33
Highest Degree:				
Bachelors	5	41.67	5	41.67
Masters	7	58.33	7	58.33
Total teaching experience:				
1-5 years	6	50.00	6	50.00
6-15 years	2	16.67	3	25.00
16 or more years	4	33.33	3	25.00
District teaching experience:				
1-5 years	8	66.67	8	66.67
6-15 years	1	8.33	2	16.67
16 or more years	3	25.00	2	16.67

Table 10

Characteristics of Top and Bottom Quartile Teachers for Instructional Interactions

	Top Quartile		Bottom Quartile	
Characteristic	n	%	n	%
Total	10		10	
Grade taught:				
Elementary (2-5)	7	70.00	7	70.00
Middle (6-8)	3	30.00	3	30.00
Highest Degree:				
Bachelors	4	40.00	5	50.00
Masters	6	60.00	5	50.00
Total teaching experience:				
1-5 years	5	50.00	6	60.00
6-15 years	2	20.00	2	20.00
16 or more years	3	30.00	2	20.00
District teaching experience:				
1-5 years	7	70.00	8	80.00
6-15 years	1	10.00	1	10.00
16 or more years	2	20.00	1	10.00

Table 11

Combined Frequency and Helpfulness Scores by Quartile and by Type of Interaction

	Top Quartile			Bottom Quartile		
Type of Interaction	Mean	SD	n	Mean	SD	n
Curricular	7.61	.82	12	3.68	.75	12
Assessment-related	7.82	.68	11	3.27	.54	11
Instructional	6.98	.84	10	2.69	.50	10

Table 12 summarizes the mean fall, spring and gain NCE reading achievement scores and standard deviations for the students assigned to the top and bottom quartile teachers for each type of interaction with instructional leaders. For all three types of interactions, the students of the teachers in the top quartile have higher NCE gains than the students of the teachers in the bottom quartile. For curricular interactions, the students of the top quartile teachers have a mean NCE gain of 7.22 points; 7.33 for instructional interactions; and 8.40 for assessment-related interactions. The NCE gains of the students of the bottom quartile teachers are much lower for the three types of interactions, 4.17 for curricular; 3.46 for instructional; and 3.11 for assessment-related.

Tables 13 to 15 display the results of the analysis of variance for repeated measures of reading achievement by teacher quartile group for curricular, instructional and assessment-related interactions. The analysis of variance for repeated measures determines differences in student reading achievement between the two groups of teachers and between the fall and spring administrations of the DRP test. It also analyzes the interaction between teacher quartile group and reading achievement or, in other words, if there is a difference in the reading achievement gains of students between the two groups of teachers.

For curricular interactions (see Table 13), the analysis indicates no significant difference in student reading achievement between the two groups of teachers ($F = .02$, $p>.05$) and the students have significant gains from the fall to spring testing session ($F = 156.45$, $p < .01$). The results of the interaction are also significant ($F = 11.20$, $p < .01$). Students of the teachers in the top quartile have more significant gains in reading achievement from the fall to the spring testing session than students assigned to the bottom quartile staff members.

Table 13

Analysis of Variance for Repeated Measures of Students' Reading Achievement by Teacher Quartile Group for Curricular Interactions with Instructional Leaders

Source	df	F
Teacher Quartile Group	1	.02
error	872	(627.58)
Reading Achievement	1	156.45**
Interaction	1	11.20**
error	872	(90.58)

Note. Values enclosed in parentheses represent mean square errors.

**p < .01.

Table 14

Analysis of Variance for Repeated Measures of Students' Reading Achievement by Teacher Quartile Group for Instructional Interactions with Instructional Leaders

Source	df	F
Teacher Quartile Group	1	.22
error	779	(590.41)
Reading Achievement	1	122.91**
Interaction	1	15.76**
error	779	(91.56)

Note. Values enclosed in parentheses represent mean square errors.

**p < .01.

For instructional interactions (see Table 14), the analysis indicates a similar pattern. There is no significant difference in student reading achievement between the two groups of teachers based on instructional interactions (F = .22, p >.05) and the students have significant gains from the fall to spring testing session (F = 122.91, p < .01). The results for the interaction indicate that the students of the teachers in the top quartile have more significant gains in reading achievement (F = 15.76, p < .01).

As shown in Table 15, there is a significant difference in student reading achievement between the two groups of teachers based on assessment-related interactions (F = 98.05, p<.01). Students assigned to the teachers in the bottom quartile have a higher NCE mean in the fall (65.50 vs. 58.93) but this difference narrows on the spring test (68.60 vs. 67.33). The analysis indicates students have significant gains from the fall to spring testing sessions (F = 179.23, p < .01). Again, the results of the interaction suggest that the students of the teachers in the top quartile have more significant gains in reading achievement than the students assigned to the bottom quartile teachers (F = 37.91, p < .01).

Table 15

Analysis of Variance for Repeated Measures of Students' Reading Achievement by Teacher Quartile Group for Assessment Interactions with Instructional Leaders

Source	df	F
Teacher Quartile Group	1	98.05**
error	929	(468.45)
Reading Achievement	1	179.23**
Interaction	1	37.91**
error	929	(85.93)

Note. Values enclosed in parentheses represent mean square errors.

**p < .01.

Discussion

The findings of this study suggest that literacy teachers vary in terms of their interactions with instructional leaders. As shown on Table 4,

descriptive statistics indicate that about one-third of the teachers interact with their peer leader on an average of between once a marking period and once a week on curricular issues and assessment-related matters. However, another 30% report they rarely interact with their instructional leader, averaging between never to less than once every quarter.

Instructional interactions are even less frequent, with average contacts occurring between at least once a year and once a quarter for the entire sample. Approximately one-fifth of the teachers indicate their average instructional contact occurs between once a quarter and once a month. However, almost half the teachers report they never interact with the CRT on instructional issues or their average contact happens less than once a marking period (four times a year).

A similar pattern occurs when the helpfulness of these interactions are examined. As shown on Table 5, curricular and assessment-related interactions are more helpful to the teachers compared to instructional contacts. Nearly one-half of the teachers report that their instructional interactions with the CRT are not helpful.

When paired-sample t tests were employed to test for differences between the three types of interactions for both frequency and helpfulness, curricular and assessment-related interactions occurred significantly more frequently and were significantly more helpful to the teachers than instructional interactions (see Tables 6 and 7).

These findings support the beliefs of several experts that teachers who assume leadership positions face unique challenges as they attempt to interact with their peers, especially on matters that the peers consider to be within their private domain- how they teach in their classroom. More than a decade ago, Lazzara et al. (1989) reported that teachers' relationships with colleagues may change substantially after their appointments to leadership positions, interacting with them less frequently and with more apprehension and suspicion. The problem appears to be persistent as Barth (2001) noted. After working with more than one-hundred teacher leaders in the state of Rhode Island, he concluded that the greatest obstacle to these individuals was from their own colleagues. He suggested that schools are congenial, but not collegial. Teachers are not comfortable discussing their practice, sharing their craft knowledge, encouraging or celebrating the success of others, and observing one another in the classroom. This uneasiness about discussing pedagogy appears to be interfering with the work of the teacher leaders in this school district.

Smylie (1992) also suggested that opportunity to meet is a necessary condition for teachers and peer leaders to establish a working relationship but that it alone is insufficient. The findings of this study support this conclusion because the CRTs in this district have no assigned teaching duties and are assigned to only one school. Even though there is ample opportunity to interact with the peer leaders, contacts vary widely within each school. Smylie further proposed that when conflict exists between the psychological orientations and the roles and rules of a particular social context, interaction is less likely to take place. When teachers are committed to the norm of professional equality, they tend to interact less frequently with peer leaders because their actions could be interpreted to condone the new status of these individuals. Teachers are also less likely to establish working relationships with peer leaders if they believe they are somehow obligated to follow their advice or that their professional independence and autonomy will be compromised.

This particular district expended considerable effort developing and coordinating the literacy program and this may account for the higher rates of contact in the curriculum domain. CRTs report they were attempting to define student performance expectations, were coordinating programs within grades and between schools, and were disseminating information to more clearly define the district's balanced literacy program.

The accountability movement may also explain why assessment-related interactions occurred more frequently and were more helpful than instructional contacts. Governmental testing requirements, the publication of test data in local newspapers and the comparisons between schools and districts is creating a climate of greater accountability. This district is relatively affluent within the state and expectations are high among community members regarding performance on statewide tests. Some teachers with lower performing students may have viewed the CRT as a valuable resource to assist them in their efforts to improve student achievement on these mandated assessments. The district also implemented a teacher evaluation program that required staff to focus on the analysis of achievement data and the establishment of student learning goals to address areas of need. In the beginning of the school year, the students of the top quartile teachers for assessment-related interactions were performing significantly below their classmates who were assigned to the bottom quartile staff members. This may have prompted the top quartile teachers to seek more frequent consultation with the CRT.

The most significant results of this study involve the achievement growth of students in the

classrooms of the teachers. As shown on Tables 13 to 15, the analysis of variance for repeated measures reveals a significant interaction between reading achievement gain and teacher quartile group. Students of teachers who report the most frequent and most helpful interactions with their peer leaders have greater achievement gains than students of staff members who have the least frequent and least helpful contacts for all three types of interactions. Their growth is approximately twice that of their peers in the classrooms of the bottom quartile teachers.

This finding supports Hargreaves' (2002) belief that "…professional learning communities lead to strong and measurable improvements in students' learning" (p. 3). However, there is a small body of research to support this belief. In a recent review of the literature on the effects and benefits of teacher leadership, Muijs and Harris (2003) only cite one study that investigated the relationship between student outcomes and teacher leadership. In that study, Leithwood and Jantzi (1998) found that teacher leadership had a significant effect on student engagement. Furthermore, they concluded that if school principals distribute a larger proportion of leadership activity to teachers, it would have a positive impact on teacher effectiveness and student engagement.

The results of this study suggest that implementing a teacher leadership initiative is a difficult endeavor for a school district. Although these restructuring efforts hold potential for improving schools, it will require time to change the culture of the organization so that teachers interact more openly and frequently on matters of curriculum, instruction and assessment. After the first two years of the teacher leadership program in this district, staff members vary in their levels of interaction with peer leaders. However, for those who did make the connections, the experiences appear professionally rewarding and beneficial to the academic growth of their students.

Limitations

It is important to note several limitations of this study. First, it is limited by the instrumentation used, particularly The Teacher-Instructional Leader Interaction Questionnaire. Although the CRTs served as a jury of experts to validate the instrument, I may have inadvertently omitted important curricular, assessment-related and instructional interactions that did occur between the teachers and the teacher leaders.

Second, teachers may not have been completely honest with their responses on the questionnaire. Some subjects may have responded in socially acceptable ways rather than reporting their actual interactions with the teacher leaders.

Third, there are limitations in the generalizability of this study due to the size and homogeneity of the sample. The elementary and middle school teachers and students in this study were located in a small, suburban district within the northeastern region of the United States.

Future Research

Additional research is needed to confirm the findings of this study in other settings, particularly the effect of teacher leadership on student achievement. Future studies might examine the relationships between teachers and peer leaders and the specific nature of their interactions in an effort to further explain how they impact student learning.

Also, I suggest that future research go beyond the self-reporting of interactions by the classroom teachers. Teacher leaders need to be included as data sources so that they may describe interactions from their perspective and the barriers they face in their attempts to engage teachers in collaborative work.

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Author Notes
Gary Alger
University of Bridgeport
Carlson Hall Room 122, Bridgeport , Connecticut
galger@bridgeport.edu

The author is currently an Assistant Professor of Educational Leadership at the University of Bridgeport. He completed thirty-one years of public school service, holding positions as an elementary teacher, building principal and central office administrator. His current research interests focus on the unique contributions of teacher leaders to improving schools and student achievement.

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