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multiple aspects of teacher and school librarian collaboration and student achievement. This preliminary report focuses on quantitative results from the first year of the two-year study in which six elementary school third-grade and fourth-grade teachers and their school librarians collaborated on science instruction, and participated in professional development intervention workshops, which included a module focused on preparing teachers and school librarians to collaborate on instruction. The content of the TLC module included discussions about information literacy standards in Information Power: Building Partnerships for Learning (AASL and AECT 1998) and AASL's Standards for the 21st-Century Learner

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professional development intervention workshops, which focused on TLC and inquiry-based science instruction. The experts also served as peer mentors for study participants.

The intervention workshops included theoretical framework for collaboration between teachers and school librarians (Montiel-Overall 2005). Participants were asked to strive for high-level collaboration suggested in the model. Discussions about articles on collaboration between teachers and school librarians and on inquiry-based science were distributed to participants prior to meeting. The workshops included role-playing by peer mentors who modeled teachers' and school librarians' planning sessions, and participants presented examples of collaboratively planned instruction in which they were engaged throughout the year.

Professional development intervention workshops were held monthly after school at a centrally located school library. Each workshop was approximately four hours long. Intervention workshops began in late August 2008, and ended in early May of 2010. The focus of this report is on the first year of the study and on results of the TLC module.

Participants

A total of thirty individuals from six schools in two public school districts in a large urban area of southwestern United States participated in the study. The intervention group consisted of twelve teachers and six school librarians. A school librarian, a third-grade teacher, and a fourth-grade teacher formed a cohort at each school. The six participating cohorts attended the monthly intervention workshops during the school year, focusing on collaborative instruction in science. At each school, a third-grade and fourth-grade teacher served as a control (n = 12) for teachers who participated in the intervention workshops. Of the thirty participants, four were male teachers (three Anglo and one African American), and twenty-six were females (sixteen Anglo, eight Latinas, and two Asian Americans). All six librarians were female, five were Latina. Two school librarians had a Master's degree in library and information science. Four librarians had earned a state endorsement to be a school librarian. Two school librarians indicated they had some experience collaborating with teachers. Although some attempt was made to match the control teachers with intervention teachers, considerable variability in years of experience, age, and ethnicity existed between the groups. At the two smaller schools, only one class was available as the control for each grade level.

Instrumentation

The revised survey on teacher and school librarian collaboration (hereafter "TLC-III") consisted of four scales of six items each. Each scale represented a facet described in the TLC Model (Facets A, B, C, D). The facets represent levels, which range from low to high on a continuum of collaborative activities described briefly below.

- Facet A: Coordination—This facet is at the low end of the continuum and involves activities in which teachers and school librarians work together to schedule or arrange time for students to participate in library activities or events (e.g. book fairs).
- Facet B: Cooperation—This facet reflects traditional collaborative endeavors in which teachers request school librarians' assistance in finding resources for instruction.
- Facet C: Integrated Instruction—This facet involves high-level collaboration between teachers and school librarians in which jointly planned and implemented instruction occurs.

- Facet D: Integrated Curriculum—This facet is at the high end of the continuum and reflects school librarians' involvement with teachers in curriculum planning and in assessment of students.

In TLC-II, the earlier version of the survey, each item on the survey was rated twice: first, on a 4-point Likert-type scale on how frequently the activity occurred (1 = Never, 2 = Rarely, 3 = Frequently, 4 = Always) and second, on its importance to student learning (1 = Not at All Important, 2 = Somewhat Important, 3 = Important, 4 = Always Important) (Montiel-Overall and Jones 2011). The scale demonstrated good reliability and validity. The internal consistency was estimated by calculating alpha reliability coefficients. The reliability of the instrument for the Frequency and Importance to Student Learning rating scales was relatively high (0.92 and 0.93, respectively). Exploratory factor analysis (EFA) procedures were carried out to identify the

Table 1. Composite score means (and standard deviations) for Frequency and Importance to Student Learning scales by group (n = 30, 6 per group).

Group	Frequency Ratings Means(SD)		Importance to Student Learning Ratings Means(SD)	
	Pre	Post	Pre	Post
third-grade intervention	0.49 (0.28)	0.77 (0.18)	0.76 (0.15)	0.87 (0.08)
third-grade control	0.32 (0.14)	0.28 (0.14)	0.70 (0.16)	0.68 (0.13)
fourth-grade intervention	0.24 (0.08)	0.60 (0.22)	0.62 (0.09)	0.72 (0.12)
fourth-grade control	0.30 (022)	0.37 (019)	0.57 (0.24)	0.48 (0.26)
school librarians	0.45 (0.21)	0.56 (0.24)	0.78 (0.08)	0.80 (0.14)

Note: Standard deviations are in parentheses.

Composite scores for both intervention groups and for the school librarians rose from pre

A significant main effect of group, F (4, 25) = 3.27, and a main effect of time, F (1, 25) = 19.06, were evident on the Frequency ratings. A statistically significant time-by-group interaction, F (1, 25) = 7.98, was also present. On Importance to Student Learning a statistically significant main effect of group was present, F (4, 25) = 3.99. A statistically significant time-by-group interaction was also present, F (1, 25) = 3.26. To identify the source of these effects, post-hoc mean comparisons using a Bonferroni approach that adjusts for Type I error in repeated tests were computed. The significance level for each test was set at $\alpha/\#\text{of tests} = .05/5$). The results of the multiple mean tests are presented in table 3.

Table 3. Pre- and post-test mean comparisons for Frequency and Importance to Student Learning.

Group	Frequency Ratings Means			Importance to Student Learning Ratings Means		
	Pre	Post	Post-Pre	Pre	Post	Post-Pre
third-grade intervention	0.49	0.77	0.28***	0.76	0.87	0.11***
third-grade control	0.32	0.28	-0.04	0.70	0.68	-0.02
fourth-grade intervention	0.24	0.60	0.36***	0.62	0.72	0.10*
fourth-grade control	0.30	0.37	0.07	0.57	0.48	-0.91
school librarians	0.45	0.56	0.11	0.78	0.80	0.02

* p < .05, ***p < .001

On the Frequency ratings, the change from pre- to post-intervention was significant for both the third-grade and fourth-grade intervention groups. The change was not statistically significant for any of the other groups. However, school librarians did show a small but non-significant gain. On Importance to Student Learning ratings, on the other hand, a significant change over ti7c 0 Tw 6.40.28trer

Figure 2. Mean rating10(M)13.76 Tm [(F)11(i)-2(gu)0(M) 2. 3.44 re f* i3 Tc -e 3.44 r 66lC]TJ 0 r 621 re

Limitations

A word should be said about the nature of this study and its findings. While quantitative studies are extremely important to academic work in general, human factors must be considered in research in the social sciences. In this study, for example, teachers who did not participate (control group) in the workshops at some of the schools were extremely anxious about the research being carried out. At the time of the study (and to date), teachers experienced considerable pressure to have students succeed on standardized tests, and this study was perceived by many control teachers as giving an advantage to certain teachers over others. Lower scores by control teachers illustrate this phenomenon and should be considered in applying classic research methods to education and other areas in which context is critically important in explaining results. Finally, the small number of participants ($n = 30$) limits the generalizability of the study.

Conclusion

Why is collaboration important? Adults learn more when they collaborate, work harder, support

Garmston, R. J. 1997. "Can Collaboration Be Taught?" Journal of Staff Development 18 (4): 44-46. <www.wsfcs.k12.nc.us/cms/lib/NC01001395/Centricity/ModuleInstance/90848/CanCollaborationBeTaught.pdf> (accessed September 16, 2012).

Glazer, E., M. J. Hannafin, and L. Song. 2005. "Promoting Technology Integration through Collaborative Apprenticeship." Educational Technology Research &

———. 2010. "Further Understanding of Collaboration: A Case Study of How It Works with Teachers and Librarians." School Libraries Worldwide 16 (2): 31–54.

Montiel-Overall, P., and P. Jones. 2011. "Teacher and School Librarian Collaboration: A Preliminary Report of Teachers' Perce

Appendix A

Appendix B

Survey Given as Pre- and Post-Test to Teachers and School Librarians in 2008-2009

Note: This survey is under further development and should not be used without permission from the authors.