The Impact of Co-teaching on Belief and Practice: One Teacher's Reflections

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C o-teaching strategies have produced teaching and learning benefits for students with disabilities in North American schools. Little is known about the effectiveness of these strategies in Australian educational contexts. In 2005, special and general educators collaborated to plan and teach a unit of work as part of an action research project involving three Queensland primary schools. A special education teacher participating in one of these teams reflected on the co-teaching process and its effects on her beliefs and practices. She recorded, in an ongoing reflective log, external events through the project and her internal responses to those events. She also used a tool developed by Rimm-Kaufman (2003), in order to examine her current beliefs about teaching and learning and to explore changes in these beliefs after co-teaching a unit of work. Her personal account has identified key aspects of the collaborative process and explored changes in her beliefs and practices.

Benefits of co-teaching

Inclusion of students with disabilities in regular classrooms has become a common occurrence in Australian schools (Foreman, 2005). How inclusion is defined and implemented, however, has varied greatly throughout the states and territories and across individual educational systems. Inclusion typically has meant that students with disabilities have become members of general education classrooms at local community schools (Halverson & Neary, 2001). This schooling arrangement has required increasing consultation and collaboration among special and general educators (Spedding, 2005; Wood, 1998).

For over a decade, co-teaching has been used to facilitate consultation and collaboration among staff in some inclusive settings. Co-teaching involves "the collaboration between general and special education teachers for all of the teaching responsibilities of all students assigned to a classroom" (Vaughn, Schumm, & Auguelles, 1997, p. 41). Studies in North America have repeatedly identified benefits for students with disabilities when they receive instruction alongside their regular peers. Skills taught in the regular classroom have been more readily generalised across the curriculum. Learning experiences, moreover, have been less fragmented compared to those embedded in pull-out sessions (Arguelles, Hughes, & Schumm, 2000; Johnson & Skatoff, 1994). Furthermore, Salend (2001) reported that academic and social performance levels improved when students with disabilities consistently participated in regular classroom programs.

Co-teaching also has provided benefits for both special and general educators. The pooling of knowledge and skills in order to plan and provide instruction for all students has been the most commonly reported benefit. In this working partnership, special educators predominantly have shared expertise related to individualised instructional strategies, while regular educators have contributed in-depth knowledge of the core curriculum. This sharing of expertise has led to an improvement in existing instructional programs, classroom climate, and academic and social learning outcomes for all students (Friend & Bursuck, 2006; Peterson & Hittie, 2003). Increased professional support, development and motivation of teachers, and better workplace conditions resulting from improved teacher-student ratios were among the primary benefits identified by Villa, Thousand, and Nevin (2004).

A number of factors have been found to influence the effectiveness of co-teaching. Important influences identified to date include adequate time to plan, effective communication between co-teaching partners, shared vision of teaching and learning, and administrative support (Gately & Gately, 2001; Langerock, 2000; Mastropieri, Scrugg, Graetz, & Norland, 2005; Reinhiller, 1996). Although co-teaching has become an increasingly popular strategy among administrators and teachers, many teachers have reported a lack of knowledge and skills to use the strategy effectively (Vaughn, Schumm, & Brick, 1998). The challenges and rewards associated with co-teaching in the Australian context have, until now, been unexplored.

Aims of local co-teaching project

In early 2005, Griffith University formed a partnership with three primary schools in a local educational district to specifically investigate co-teaching strategies and the microprocesses involved in collaboration. The initial project involved six miniteams of special and general educators who systematically focused on the collaborative planning, implementation, and evaluation of a unit of work. Wehmeyer and colleagues (2002) have defined a unit of work as "maps that teachers create to organise and plan for how they are going to support students to help them learn and demonstrate their understanding of the content, skills, processes, and knowledge required to achieve grade-level and broader school outcomes" (p. 129). Each miniteam worked on a unit of work relevant to curriculum demands within specific school, classroom, and year-level contexts.

The broad aim of the project was to explore the co-teaching strategy in local school contexts. The specific aim for the special educator was to explore her professional beliefs and practices, especially those related to co-teaching experiences within the context of a Year 6 class.

Method

In the main, the general array of methodologies used by the special educator to examine her co-teaching experiences paralleled those employed across all miniteams in the project. Data gathered across all co-teachers at project meetings are reported in another paper in these proceedings (see Beamish, Bryer, & Davies). For this personalised inquiry about the co-teaching experiences of this particular special educator, additional data were examined.

Miniteam participants and contextual factors

The special educator was a Griffith University postgraduate who had 7 years experience teaching students with diverse needs across primary and secondary cohorts in Australia and England. Her co-teaching partner was a Griffith University primary graduate who had 7 years experience teaching middle school at the same local setting in Queensland. For these teachers, co-teaching involved the planning, implementation, and evaluation of a science unit for Year 6 students across a 10-week period. Class membership included students with intellectual impairments and learning difficulties, students from non-English speaking backgrounds, and students who were high achievers. The unit required all students to investigate a chosen scientific topic, to write a lesson plan, and to teach the entire class about their topic.

Procedure

In the planning phase, the co-teaching partners brainstormed ideas, designed lesson activities, and prepared assessment items. This collaborative process involved the sharing of beliefs about teaching and learning, negotiation of roles, and discussion of preferred teaching styles within the delivery of the unit. This task was time intensive and required open communication between co-teaching partners. The relationship was built on mutual respect and a common desire to deliver a motivating and challenging unit of work. Administrative support enabled logistical problems such as time to meet and adjustments to work schedules to be resolved.

In the implementation phase, the special educator joined the Year 6 class two to three times a week. She worked with specific groups of students to guide the brainstorming of ideas, to assist in the researching of background material, and to facilitate the designing of scientific presentations. Together, the co-teaching partners used formative and summative assessment to track student progress throughout the learning process. The partners also prepared a rubric (viz., a guide showing students exactly what to do to achieve a specific grade) to assist students in a culminating activity whereby they presented their work to the entire class.

Throughout this collaborative process, the co-teaching partners discussed the effectiveness of the unit and made ongoing changes to lesson content, individual student expectations, and assessment requirements. These teachers also reflected on various elements of co-teaching such as the compatibility of personalities in the co-teaching relationship, ideas about what constitutes good teaching and learning, equitable workload, and future plans for co-teaching.

Data gathering and analysis

Data were gathered from two sources. First, a personal reflective log was documented by the special educator across the 10-week time frame of the unit of work. Second, the Teacher Belief Q-Sort (TBQ) measurement tool developed by Rimm-Kaufman (2003) was used to quantify this teachers' beliefs and practices: The new tool is one of the few instruments that provide measurable data on teacher beliefs and priorities that inform decisions about inclusive practice.

Log entries

Eleven log entries were documented across the planning and implementation phases of the unit of work. The reflective process was deepened through the use of the 5Rs framework (Bain, Ballantyne, Mills, & Lester, 2002). The five components (reporting, responding, relating, reasoning, and reconstructing) in the framework assisted the special educator to systematically record her experiences, focus on emotions and thoughts related to the collaborative process, and explore future changes to teaching practice.

TBQ

The Teacher Belief Q-Sort (TBQ) is an innovative tool for "quantifying beliefs and priorities in three aspects of teachers' beliefs that have been viewed as prominent: 1) discipline and behaviour management practices, 2) teaching practices, and 3) beliefs about children" (Rimm-Kaufman, Storm, Sawyer, & Pianta, 2004, p. 3). The tool comprises 20 statements for each of the three statement areas (viz. discipline and behaviour management practices, teaching practices, and beliefs about children). That is, there are 60 statements on individual cards to be sorted.

Within each area, statement cards are sorted according to 5 anchor levels from *A: Least characteristic of my approach or beliefs* through to *E: Very characteristic of my approach or beliefs*. A forced-choice method of card sorting ensures that each anchor card can only have four statements allocated to it. This method is aimed to produce an unbiased result. The special educator completed the TBQ twice: (a) prior to commencement of the project (Session 1) and (b) 4 months later, after implementation of the unit of work (Session 2). She also reflected on her personal reactions to undertaking the TBQ card sort and its effectiveness as a feedback mechanism on both occasions.

Analysis

Both sets of textual data from the log and TBQ reflections were loaded into and analysed using *Leximancer 2.2* (Smith, 2005). This software package "generates a nonselective exploration of samples of text. Leximancer computes the frequency with which each term is used, after discarding text items of no research relevance (such as "a" and "the"), and then computes the distance between each of the terms via computations equivalent to nonparametric factor analytic or cluster analytic procedures" (Martschinke, Waugh, Beamish, & Davies, 2004, p. 264). Computations of high frequency words are displayed as a two-dimensional spatial representation of co-occurring concepts (i.e., clusters of related words), which are grouped in thematic circles. Recommended guidelines for interpreting concept maps were applied (Smith & Humphreys, 2005). From this visual display, specific themes in each of the special educator's reflections were identified.

Results

Log

Figure 1 displays a map of co-occurring concepts in thematic circles (i.e., themes) generated from documented reflections in the special educator's co-teaching experience log. Identified themes were clustered around the co-teaching partner ("Amber"), the "co-teaching" experience, and, to a lesser extent, around "students", "individual student", and "group." The co-teaching partner was clearly the central focus of reflections, with the

special educator most frequently writing about interactions with her co-teacher and about planning the unit of work. "Co-teaching" also was a strongly featured element in these reflections, with issues (including time) and beliefs being frequently documented in the text. Overlapping boundaries between these core themes (co-teaching partner and co-teaching) indicated the integration of these concepts throughout the log. "Student", "individual students", and "group" were recognised as minor, separate, but complementary themes focused on children rather than adults.
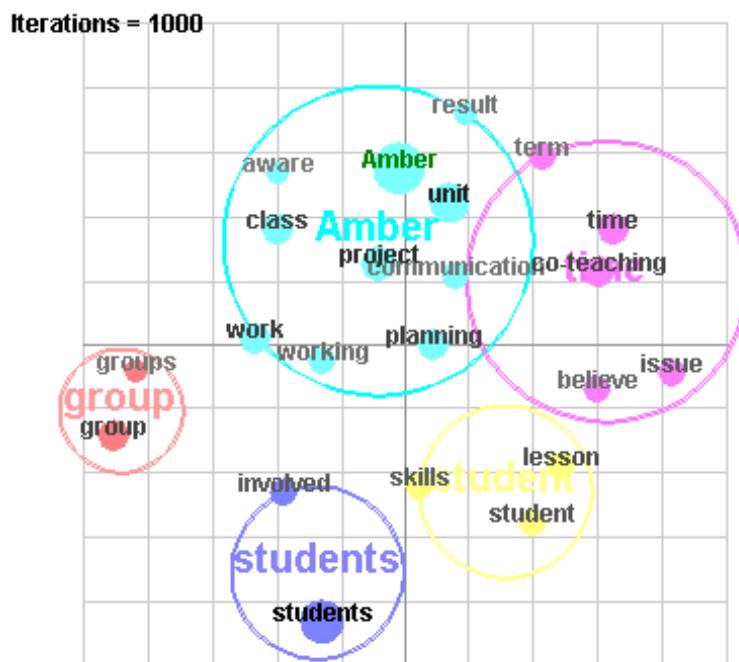

Figure 1.

Leximancer analysis of reflective log kept by the special educator over a 10-week period.

TBQ

The TBQ employs a summative method to represent teacher priorities and beliefs. The highest and lowest rated levels in each of the three designated areas (viz., discipline and behaviour management practices, teaching practices, and beliefs about children) were examined across the two instances of data gathering. Rated levels in all areas, rated levels of belief were relatively stable for both data sets. Inspection of Table 1 shows examples of the kinds of changes in belief statements in the three areas that underpin the Figure 3 consolidation of aspects of teacher practice into one major coherent theme. For example, the statement "Praise from me is an effective way to change students' behaviour" was the

most highly rated statement about discipline, and the special educator's positive rank in "Very characteristic of my approach or beliefs about discipline and behaviour management" changed from first statement in this ranking to third statement in this ranking. The Session 2 statement that became the first statement in this ranking was "It is important to respect students' autonomy and expect them to act in a responsible manner."

Table 1

Examples of changing statements in the three TBQ areas of discipline, teacher practice, and beliefs about children

TBQ AREA	EXAMPLES OF MOST EXTREME RATINGS OF TBQ STATEMENTS	
Area 1 statements: Classroom discipline and behaviour management	Least characteristic of my approach or beliefs about discipline and behaviour management[a]	
	Session 1	Session 2
	1.6: Monitoring students can prevent problematic situations *(moved down two levels in Session 2).*	1.12: It is important to respect students' autonomy and expect them to act in a responsible manner *(moved up one level in Session 2).*
	Very characteristic of my approach or beliefs about discipline and behaviour management	
	Session 1	Session 2
	1.15: Praise from me is an effective way to change students' behaviour. *(moved down one level in Session 2).*	1.17: If I treat students with respect, kindness, and concern, there are less behaviour problems *(moved up one level in Session 2.*
Area 2 statements: Teaching priorities and classroom practices	Those practices that are least essential and/ or characteristic of my teaching	
	2.19: Using a theme-based approach to instruction *(moved up one level in Session 2).*	2.15: Using work sheet *(moved down one level in Session 2).*
	Those practices that are most essential and/ or characteristic of my teaching	
	2.17: Encouraging students and giving feedback that focuses on the process of students' creations or thinking, not the outcomes or the solution *(moved down one level in Session 2).*	2.16: Permitting students to choose from a variety of activities *(moved up one level in Session 2).*
Area 3 statements: Beliefs regarding children	Least characteristic of my belief system	
	3.7: Most students respect teachers and authority *(moved up one level in Session 2).*	3.2: Many of the students in my class try to get away with doing as little work as possible *(moved down one level in Session 2).*
	Most characteristic of my belief system	
	3.4: Students need to be met where they are in terms of ability *(moved down three levels in Session 2).*	3.17: Students learn best by being actively involved in lessons *(moved up one level in Session 2).*

[a]Italicised text indicates the presence and direction of changes in ratings for these statements.

A comparison of Leximancer analyses of TBQ reflections from Sessions 1 and 2, however, appeared to reveal a shift in perspective: That is, the priorities about inclusion in the special educator's belief system showed changes. Figure 2 displays analysed reflections about the whole TBQ (across 3 areas) at Session 1. Figure 3 displays analysed reflections restricted to the TBQ teaching practice area at Session 2. Although direct comparison of visual displays is problematic, each concept map tells a particular "story." Because individual responses of this special educator provided a limited amount of text, direct inspection of the text easily indicated that her response material was consistent with the interpretation of the mapped story and that text meaning did not contain themes contrary to this interpretation.
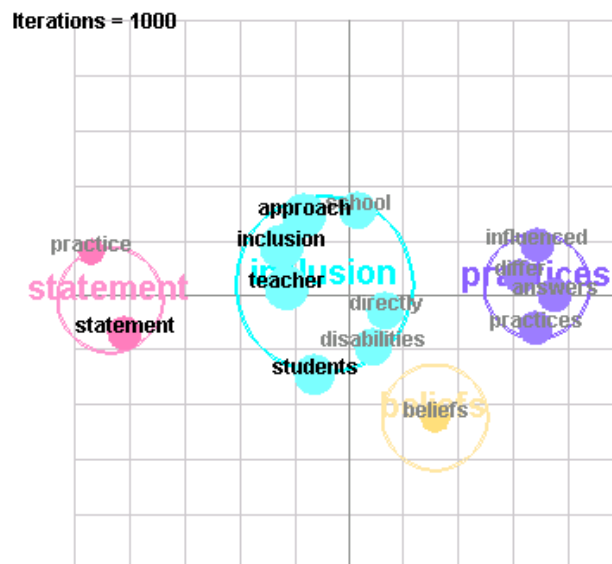

Figure 2.

Leximancer analysis of reflections for whole TBQ at Session 1.

Figure 2 shows a clustering of three core themes along the horizontal axis at Session 1. In this display, "inclusion" featured as the dominant theme, and TBQ "practices" and "statement" were separate and subsidiary themes. TBQ "beliefs" was a minor theme. Yet, its position on the conceptual map showed a closer relationship to "inclusion" and "practice" than to "statement." In all, the special educator's focus was "directly" related to the "inclusion" of "students" with "disabilities", which reflected her facilitative role in including students with disabilities in regular classrooms. As a result, it can be seen that the rank-ordering of the answers (special educator's ratings of TBQ items) is reflected in the discrete positioning of the co-occurring concepts of "beliefs" and the "statement" cards along a horizontal axis without any overlap. "My approach to

completing this task [TBQ card sort] has been very much influenced by my current role…my answers would differ greatly if I were a teacher in a special school…or regular classroom." In her reflection, the special educator made it clear that she had experienced difficulty relating to a number of TBQ belief statements. These difficulties may have stemmed from her work context and traditional role as a special educator. The distance between "belief" and "statement" themes shows that the practitioner's personal beliefs were not aligning with TBQ belief statements.
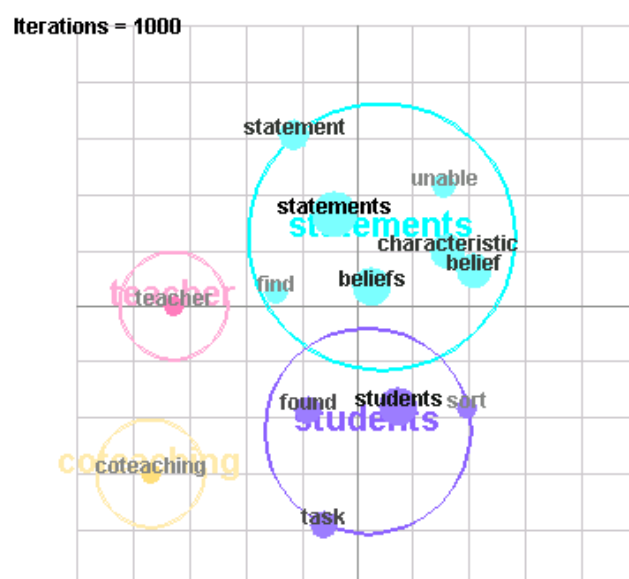

Figure 3.

Leximancer analysis of reflections about TBQ statements about teaching practice at Session 2.

The merging of "beliefs" and "statements" within the major "statements" theme in Figure 3 stands in marked contrast to the dislocation of these concepts displayed in Figure 2. Moreover, the "statements" theme is overlapping with "students" as a discrete theme itself. When the special educator reflected on aspects of teaching practice at a later date, after the co-teaching experience (see Figure 3), two core themes clustered on the vertical axis. Thus, "statements" was the dominant theme in the text, with "students" identified as a secondary and overlapping theme. At the second session, "statements" were interpreted from a different perspective, in that the special educator experienced a shift in focus that is "characteristic" of a change in "beliefs." After the "co-teaching" experience, the general theme of "students" replaced the focus on "disability" in the first session. The clusters of "co-teaching" and "teacher" (co-teacher) were displayed as minor themes, indicating that the shift in focus moved from that of special education to one of co-teaching. This visual display corresponds with the special educator's comments:

"I found myself approaching the task from an entirely different perspective. This [TBQ card] sort was completed as a co-teacher rather than special educator" and "I have been able to draw on wider and more in-depth experiences to assist me in rating the statements."

Discussion

The traditional role of the special educator in Queensland has been one that facilitates the inclusion of specific individuals with disabilities in regular classrooms. Figure 2 showed the effect of this role in the infusion of a strong disability perspective on inclusion in Session 1 reflections about the TBQ card sort. That is, at the beginning of the project, the special educator approached the card sort in terms of current practice and core role. This reflection was infused with workplace responsibilities concerning the inclusion of three individual students with disabilities into a Year 6 classroom.

After the co-teaching experience, the visual array in Figure 3 reflected changes in the special educator's perception of her role. She was drawing on different experiences as a special educator working with a whole class of Year 6 students and with a regular classroom teacher, in order to facilitate inclusion of students with disabilities. The strong theme of "students" in Figure 3 demonstrated the refocussing of the special educator from an individual to a group perspective. In particular, the clustering of "students" and "tasks" in the "students" theme indicated a co-teaching perspective on teacher practice. Moreover, she was able to see the relevance of some TBQ practices that were previously irrelevant to her role as a special educator. The strong theme of "statements" brought together concepts that were previously mere satellites to reflections about the core theme of "inclusion." In Figure 2, "beliefs" and practices that are "characteristic" of the special educator's role were embedded within the process of TBQ completion. That is, the visual changes between Figures 2 and 3 illustrated the refocussing of the special educator's understanding of her role in education.

The co-teaching experience affected the special educator's priorities and beliefs regarding her approach to inclusion in a number of ways. The Leximancer analysis of the reflective log entries illustrated how co-teaching experiences influenced the special educator's view of inclusion. In Figure 1, the dominant theme of the relationship between the co-teaching partners was directly influenced by and co-occurred with "communication" skills, "unit" "planning" time, "working" collaboratively, and being "aware" of "class" needs. The "time" theme linked with the co-teaching experience theme (Amber) was concerned with time for the partners to discuss the "co-teaching" "unit." Within the "time" theme, the shared "believe" views of effective instruction facilitated a productive working relationship. These experiences reflect similar co-teaching issues identified in the literature. These issues include sufficient time to plan, to discuss instruction, and to collaborate on the process (Langerock, 2000); voluntary choice in the co-teaching partnership (Reinhiller, 1996); and funding and support from administration (Cook & Friend, 1995; Mastopieri et al., 2005).

Changes in TBQ concept mapping (Figure 2 versus Figure 3) indicate that co-teaching has influenced some aspects of teacher priorities and belief. Although the special educator showed slight changes in the way she sorted the cards for discipline, behaviour management, and children, she considered that these changes were transient

rather than significant. However, her notions, expressed in her TBQ reflections about the process of sorting the cards, did display some interesting changes, which the special educator considered were genuine changes in priorities and belief. Mapping also indicated some change in perspective from individual and small group emphases of teaching practice to whole-of-class considerations. The special educator was able to interpret the statements from a broader teaching perspective, enabling greater ease in the completion of the TBQ.

In this study, TBQ was a useful tool for quantifying priorities and beliefs. However, by itself, it was not found to be sensitive enough to identify or track changes in these three aspects over short periods of time. The addition of a reflection at the completion of the TBQ sort in the present project has been found to assist in the interpretation and identification of teaching priorities and beliefs about inclusion for this special educator. This reflection on the card sorting experience added to the results and interpretation of the TBQ tool because it highlighted for the participant the successes that can be achieved through engaging in a co-teaching process. That is, the forced choices in the card sort generated a story with which the participant did not identify. However, reflecting on these forced choices did prompt a more meaningful story. In combination, forced choice and reflection on forced choice appeared to be a valuable means to measure change in priorities and beliefs.

Conclusion

The TBQ experience required thought and articulation of the special educator's mostly implicit beliefs. The TBQ experience made the special educator more aware of her perspective when teaching. In particular, she became aware of a shift in emphasis of her teaching priorities away from small groups of students with disabilities and towards large groups of diverse students with a variety of skills and needs. The opportunities that she had to work with gifted and talented students, students from non-English speaking backgrounds, students with learning difficulties, and students from a wide range of socioeconomic backgrounds were new and exciting and extended her role and her practice. Her presence in the regular classroom contributed to student learning outcomes in several ways. Her collaboration with the regular classroom teacher provided a model of working together for the students; students were able to choose which teacher was most appropriate to provide guidance for specific tasks; and a comprehensive approach to gathering data on student performance and learning encouraged ongoing program modifications and instructional refinements.

The reflective log allowed the special educator to process thoughts and actions, analysing them with reference to the literature. Through the log, the special educator was able to explore her role in the co-teaching project and to consider her subsequent actions and decisions regarding future practice. These decisions included a greater balance between teaching partners, more time in the classroom, greater communication between teaching partners, and the trial of a variety of co-teaching models (supportive teaching, parallel teaching, complementary teaching, team teaching), in order to ensure that the working relationship moves from the "forming" to the "fermenting" stage (Villa, Thousand, & Nevin, 2004, p. 95).

It would appear that co-teaching is a process that not only excited the special educator but also empowered and challenged her as a professional to enrich curriculum to the advantage of all students. Further research into maximising co-teaching processes for the benefit of teaching professionals and students is required.

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