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Co-teaching in Queensland Primary Schools: Teacher Reflections

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Australian schools have begun to implement a variety of inclusion models, but there is little local research into the effectiveness of these models. Co-teaching strategies have been used for 15 years to accommodate the diverse range of learners in North American classrooms. Co-teaching, an extension of traditional team teaching, has proven to be a successful strategy for increasing collaboration between regular and special educators. A partnership between university researchers and staff at three primary schools has started to introduce co-teaching into primary classroom practice and to study the kind of microprocesses involved in these collaborations. Six mini-teams of regular and special education teachers systematically used a co-teaching strategy to plan, implement, and evaluate a unit of work in classes with diverse abilities and needs across the second half of 2005 (July–November). Five sessions of action learning enabled school teams and university staff to come together in order to share perspectives and to document reflections-on-action. Teacher responses to and reflections about the first three sessions showed changing thoughts and beliefs about roles and responsibilities in regular classrooms.

Introduction

Over the last decade, Australian schools have begun to implement a variety of inclusion models in order to provide relevant schooling for all students. An assortment of collaborative teaching approaches has begun to emerge across Australian educational systems, settings, and classrooms (Spedding, 2005). In North America, a collaborative partnership between regular and special educators has been recognised as a critical enabler of inclusive practice, especially when collaborating teachers have supported the same learning environment (Frey, Fisher, & Henry, 2005; Peterson & Hittie, 2003; Wood, 1998). Co-teaching has been described as "a new variation of a not-so-new practice" (Reinhiller, 1996, p. 34). Essentially, this continuation of the traditional team teaching arrangement has involved regular and special educators actively working in partnership to deliver "substantive instruction to a diverse or blended group of students in a single physical space" (Cook & Friend, 1995, p. 2). According to Murawski and Swanson (2001), Bauwens, Hourcade, and Friend (1989) initially termed this regular-special educator relationship *cooperative teaching*, and Cook and Friend (1995) later shortened the term to *co-teaching*.

This particular form of collaborative teaching requires partners to negotiate roles and responsibilities in relation to (a) the educational process and (b) student groupings. Murawski (2005) argued that switching roles and students are key tenets for co-teachers

to achieve more parity of responsibility and accountability. That is, the regular teacher is not always providing large group instruction, and the special education teacher in that classroom is not always attached to students with disability. To facilitate negotiations of this kind, Villa, Thousand, and Nevin (2004) offered a decision-making matrix, in which four levels of responsibility (i.e., primary, equal, secondary, and some input into decision making) could be tagged to particular combinations of people and tasks. Hence, shared and equitable tasking or responsibility is not a necessary precondition for a genuine co-teaching partnership, which, in turn, allows for some variety.

Co-teaching partners typically have collaborated across the educational planning, implementation (i.e., delivery of instruction), and evaluation process (Austin, 2001; Magiera & Zigmond, 2005; Walther-Thomas, 1997). To date, collaboration about planning and evaluation has not generated innovative outcomes beyond those associated with team teaching. Planning has conventionally included the co-design of units of work and the shared coordination of IEP meetings. Evaluation of individual students, adjustment of performance standards, and monitoring of student progress have often produced a more systematic and integrated approach to assessment (Gately & Gately, 2001).

An ever-expanding variety of co-teaching options, however, have been shown to allow joint delivery of instruction. Four main approaches have ranged from *team teaching* a whole group of students, *parallel teaching* two heterogeneous groups of students, *station teaching* students on a rotational basis, and *alternative teaching* of both large groups and more individualised teaching of a small group (Cook & Friend, 1995). A fifth variation requires sophisticated interactions: In *one teacher, one support* (Cook & Friend, 1995), teachers frequently switch the supporting teacher role such that the supporting teacher organises adaptations, class management, charting, and other supports, while the other teacher plans and performs instruction (Murawski, 2005). Other related options for joint delivery have included *teaching on purpose*, in which the supporting teacher gives brief mini-lessons to individuals or student pairs, while the other teacher manages whole-of-class instruction (Vaughn, Schumm, & Arguelles, 1997), and *collaborative scheduling*, which requires the special educator to divide time across two or more different classes (Walsh & Jones, 2004).

Across the educational process, co-teaching partners routinely have shared responsibility for students with disabilities. As students with disabilities take their rightful place alongside peers in regular classrooms, this collaborative style of teaching makes pragmatic sense. Yet, the special educator's primary responsibility is usually "to ensure that students with disabilities in the classroom are accessing the general education curriculum and otherwise working toward the goals on their IEPs" (McLaughlin & Nolet, 2004, p. 87). In order for co-teaching to facilitate this access and individualisation in the inclusive setting, some changes are required to existing classroom routines of the regular educator and the special educator (Murawski, 2005).

The nature of effective co-teaching relationships has attracted considerable research interest (Villa et al., 2004). One focus of this research has explored interpersonal characteristics of co-teachers and their developing rapport in daily relationships (Gately, 2005; Murawski, 2005; Walther-Thomas, Korinek, McLaughlin, & Williams, 2000). Another focus has been teachers' beliefs about co-teaching and their intuitive conviction

that co-teaching provides a practical means to enact the philosophical value widely accorded to inclusive education (Austin, 2001; Gately, 2005; Rice & Zigmond 2000).

For example, Walther-Thomas et al. (2000) reported that the common characteristics of successful co-teachers include "professional competence, personal confidence, respect of colleagues, professional enthusiasm, respect of colleagues' skills and contributions, good communication and problem solving skills, personal interest in professional growth, flexibility and openness to new ideas, and effective organisational skills" (p. 190). In contrast, Keefe, Moore, and Duff (2004) argued that success in co-teaching is related to four essential "know" areas: (a) know yourself, (b) know your partner, (c) know your students, and (d) know your "stuff." The Keefe et al. approach introduced a reflective dimension to co-teaching and its intra- and interpersonal dynamics.

Teachers' beliefs about and perceptions of co-teaching have been examined through a mix of traditional survey methods, interviews, and classroom observations. To date, teacher reporting in both elementary (primary) and secondary classrooms has produced in an extensive list of benefits, barriers, and practice recommendations. Each study has added another unique contribution from different educational contexts to this list.

For example, Austin (2001) conducted a large-scale North American survey of 139 co-teachers (kindergarten through 12th grade) from nine school districts in New Jersey. The Perceptions of Co-Teaching Survey (PCTS) was used to gather demographic data and information across four practice areas (viz., current experience, recommended collaborative practices, teacher preparation, and school-based supports). Six co-teaching partners were then randomly chosen from survey respondents who had previously indicated willingness to participate in a 20-minute telephone interview. In general, survey data revealed that both groups of teachers agreed that (a) co-teaching was a worthwhile teaching arrangement with mutual benefits, (b) co-teachers should establish and maintain specific areas of responsibility, (c) teacher preparation should incorporate co-teaching experiences, and that (d) many of the recommended practices and school-based supports being accessed were not as effective as anticipated. Interview data confirmed these survey findings and, in some cases, added a degree of specificity to reported beliefs. For example, a reduced student-teacher ratio was seen to be a principal benefit, and co-teaching was thought to make a positive contribution to the academic and social development of all students.

By comparison, Rice and Zigmond (2000) examined teacher beliefs about co-teaching in Australian and North American secondary classrooms in urban settings. In this small-scale study, data were gathered from eight teachers in eight schools in southeast Queensland and nine teachers in two schools in southwestern Pennsylvania using mainly interviews combined with classroom observations. Despite contextual differences, Australian and American teachers reported similar beliefs in relation to six key themes. These themes related to the importance of schoolwide acceptance, the benefits of co-teaching, the need for professional and personal compatibility, the status of special educators, the proving of competence on the part of special educators, and the contending with attitudinal and administrative barriers (see Table 1). In broad terms, regular educators have doubted the general instructional skills of special educators (see, also, Murawski, 2005).

Research aims

Long-term aims for this study concern the local effectiveness of co-teaching as a strategy to (a) cater for the diverse learning needs of students in the regular classroom; (b) document, implement, and evaluate education adjustments for students with disabilities; and (c) improve the collaboration between regular and special educators. Secondary aims concern (a) the effects of co-teaching on the roles and responsibilities of co-teaching partners and (b) barriers to and facilitators of effective co-teaching practice. Because co-teaching has not been routinely employed in local schools, multiple cycles of action research were anticipated. As indicated in Table 1, there are many avenues for further investigation of educational process and student groupings in primary classrooms.

Table 1

Themes about Co-teaching identified by Australian Teachers (Rice & Zigmond, 2000)

Effective implementation of co-teaching requires schoolwide acceptance of inclusive policies and co-teaching as a viable support option.
Co-teaching arrangements bring benefits for all teachers and students.
Teachers rate professional and personal compatibility highly in preferred co-teaching partners.
Special education teachers are seldom given equal status in co-teaching partnerships.
Special education teachers must often prove themselves capable of making a unique and substantive contribution.
Implementing co-teaching in secondary schools often involves overcoming entrenched attitudes and administrative barriers.

The aim of this first cycle of the study (May–December 2005) was to document the influence of co-teaching on the educational process (i.e., co-design, co-delivery, co-evaluation) for one unit of work and, more specifically, to explore the kind of microprocesses involved in team collaborations between regular and special educators. At this midpoint in this first cycle of the study, teachers' reflections highlighted their thoughts and feelings on entering the study (baseline), completing co-designing a unit of work, and commencing its implementation (i.e., delivering the unit of work in partnership).

Method

Overall approach

Participatory action research (PAR) study has provided an appropriate methodology to explore everyday issues related to education, health, and social planning (Beamish & Bryer, 1999). PAR has been viewed as an efficient mechanism to "close the gap" between research and practice and to address the widespread research-to-practice dilemma. PAR has been broadly characterised by its "grass-roots" orientation to workplace problems, its emphasis on active engagement of practitioners, and its strong process base (Beamish, 2004). This methodology for action learning has been used effectively to inform and improve local practice (Beamish, 2004; Hartshorne, Gray, Murray, Biggam, Beamish, & Bryer, 2004; Hartshorne, Murray, Beamish, & Bryer, 2003).

Hence, the use of this overarching methodology to formally explore the co-teaching strategy within the Queensland context has meant that mini-teams of regular and special educators became co-researchers with university staff. Because the primary stakeholders in co-teaching research are teachers, their responses to co-teaching were the focus of this study. In order to study teachers' perspectives on co-teaching partnerships, a small number of primary schools were invited to participate in an initial joint venture between teachers and researchers at Griffith University. Co-researching co-teaching with school staff was expected to generate relevant and "do-able" practice outcomes likely to be operationalised in Queensland schools.

Participants

Three schools in the Logan-Albert Beaudesert educational district in Queensland were approached to participate in the study. Six mini-teams volunteered to participate. Each team had one Griffith-trained special education teacher. They were familiar with the 5Rs approach to reflection (Bain, Ballantyne, Mills, & Lester, 2002). Half of the teams had one regular teacher, but the other three teams had two regular teachers. Some pairs of educators were team teaching prior to the establishment of the study, and those arrangements were left undisturbed. Year levels ranged from Year 2 to Year 6, and teams worked on various units of work (e.g., science, literacy, history, technology).

The general characteristics of the 15 teachers included female (14 of 15); ages ranged from 25–40 years (10) and over 40 years (5); years of teaching varied from 6 months to 17 years ($M = 5.5$, $SD = 5.0$); none had postgraduate qualifications. The special and regular educators were of similar age, and they had similar experience with special needs students (7.4 vs. 6.6 years). However, the special educators were less experienced in classroom teaching than the regular educators (2.6 vs. 6.5 years), and had more extensive undergraduate training (4 vs. 2.5 years).

Action learning sessions

In the period from June to November 2005, five sessions of action learning were scheduled in after-school time. These sessions enabled school teams and university staff to come together in a school setting in order to share perspectives on instructional and assessment features of respective units of work, resources (e.g., research literature), and emerging thoughts and feelings. At the first session, university staff negotiated study aims and timeline, shared basic notions about co-teaching and reflective practice, and distributed a sample unit of work based on the pyramid planning model (Schumm, Vaughn, & Harris, 1997). Moreover, all teachers received a booklet of "credible sources on current best practices in co-teaching" (Rea & Connell, 2005, p. 37). The university researchers also indicated that university research funding² of single-day teacher release would be provided to regular educators in mini-teams to support co-planning units of work, and that each team needed to negotiate partners' preferred release time and use of that time.

Each action learning session followed a similar format. Each session included the exchange of information and interaction between participants (among university staff and school staff and among co-teaching partners) in the form of large or small group discussions or presentation of materials. All teachers individually completed open-ended

survey questions at each session. All teachers participated in session discussions (either whole or small group), which were focused on a particular collaborative theme (viz., baseline, co-design, teaming). At the end of each session, teachers provided reflective statements on the session on a small card.

For each session, survey questions were used to elicit the current thinking and beliefs of teachers. Each set of questions was designed to address the component of reflective practice. Within the 5Rs framework of teacher reflection about their practice (Bain et al., 2002), the first survey question referred to responding (describing teacher response to practice event, situation, or activity, such as "units of work"), the second question to relating (making emotional connections between the activity and either one's immediate feelings and or more general emotional link to practice history), the third question to reasoning (cognitive awareness and analysis of practice), and the fourth question to reconstructing (forward planning for improved practice). Because all special educators were familiar with 5Rs, they informed their co-teaching partner about the use of this framework.

Data collection

Across the first three action learning sessions (June, July, and August), teachers provided responses to (a) three preliminary background questions about their knowledge, experience, and confidence; (b) 16 survey questions across the three sessions, with eight questions in Session 1 providing a baseline and four questions in Sessions 2 and 3 respectively providing information about changes in teacher responses; and (c) three reflective statements made at the end of each session.

In Session 1 (baseline), teachers were initially asked three background questions about their knowledge, experience, and confidence in three domains of teacher work: (a) designing units of work, (b) collaborating with another teacher, and (c) working with special needs students. Teachers then responded to eight survey questions and completed the reflective statement at the end of the session. In Sessions 2 (Design) and 3 (Teaming), teachers responded to four survey questions at the start of the session and wrote another reflective statement at the end of these sessions. Data from survey questions and reflective statements were transcribed into 22 separate Word files. Each text file or data set was cleaned by discarding text items of no research relevance (i.e., "It would seem") and by merging like-meaning words (i.e., "student" and "child").

Table 2 provides a summary of the content and structured questions for these three sessions. This summary has been organised into a matrix in relation to the 5Rs aspects of the questions (see column 1 in Table 2, in which the 5Rs were reduced to 4Rs by collapsing the two emotionally-oriented levels of reflection into a "how do you feel" question) and in relation to matched baseline-intervention comparisons between questions in successive sessions. Session 1 questions have been organised into two columns in Table 2 from 1.1.to 1.8 (see columns 2 and 4 in Table 2) were paired with related questions in the co-design (Session 2) and teaming sessions (Session 3). Teacher thinking and beliefs at baseline (Columns 2 and 4) could then be compared to responses in Session 2 (Column 3) and Session 3 (Column 5).

Table 2

Comparisons among questions from three action learning sessions

5RS	SESSION 1 BASELINE: UNIT OF WORK	SESSION 2: DESIGN	SESSION 1 BASELINE: COLLABORATION	SESSION 3: TEAMING
Respond	1.1. Describe your current approach to units of work	2.1. How are you co-designing?	1.5. Describe how you currently collaborate with others in your units of work.	<i>3.1 Describe how you have teamed with your teaching partner(s) to co-design and co-implement this unit of work.</i>
Respond Relate	1.2. How do you feel about your units of work?	2.2. How do you feel about co-designing units of work?	1.6. How do you feel about working with others in your units of work?	3.2 How do you feel about teaming with your teaching partner(s) on this unit of work?
Reason	1.3. In what way are your units of work effective?	2.3. What are the strengths of this co-designed unit of work?	1.7. In what ways does collaboration improve your units of work?	3.3 What are the benefits of the current teaming activity in light of other collaborative activity you routinely undertake?
Reconstruct	1.4. How would you like to do your units of work differently?	2.4. Next time, how would you co-design differently?	1.8. How would you like to collaborate differently in relation to your units of work?	3.4 Next time, how would you team differently with your teaching partner(s) to co-design and co-implement a unit of work?
	Session 1 reflective statements	Session 2 reflective statements		Session 3 reflective statements

Data analysis

For data analysis, the 22 separate Word files for responses comprised (a) the three initial questions on knowledge, experience, and confidence, (b) the 16 survey questions, and (c) three reflective statements. The Leximancer 2.2 (Smith, 2005) software package was used to generate a series of automatic analyses of teacher responses. Teachers' text from 19 survey questions and 3 reflective statements was thus converted into semantic patterns displayed in word frequency lists and 2-dimensional concept maps. Content analyses on each of the 22 word files identified the main themes and their respective relationships for each data set (see, elsewhere in these proceedings, Hambly, Davies, Beamish, & Bryer, 2005) and provided a concept map providing a visual representation of the most meaningful patterning of the text.

Protocols for visual interpretation of a Leximancer concept map have been based on brighter and larger dots for higher frequency words, closer positioning of dots with stronger relationships that were spoken about in same text segments of about three

sentences, and more centrally located words being most central to the text meaning (Smith & Humphreys, 2005). In Version 2.2 of the Leximancer program, the addition of thematic circles has provided visible boundaries around groups or clusters of related words, facilitating examination of relationships between frequently occurring words in each map. Although the default option of initial concept mapping in Leximancer uses 100% of text, interpretation of the visual displays in the present analyses was improved by reducing themes and concept size to 50% and rotating maps to align with the set of maps.

Inspection of pairs of maps (comparing baseline and related intervention questions in Table 2) was then used to indicate changing thoughts and feelings. Thus, changes in the organisation and features of related maps could be observed across concept mapping outputs (e.g., thematic clusters and their high frequency content, overlap and separation of clusters, alignment of clusters along horizontal and vertical axes). Some maps did not contain enough content to justify discussion, and some maps did not suggest changes. Results of most interest in terms of adequate text content and evident changes were selected for reporting in more detail.

Results

Table 3 displays content-analysed responses to background questions regarding teacher knowledge, experience, and confidence in each of the three domains of teacher work. Prior to this co-teaching study, confidence and experience were dominant core themes and major concepts, indicating that co-teachers generally had positive thoughts and self-beliefs as they entered the study.

Table 3

Dominant core themes and major concepts across three domains

DOMAINS OF WORK	CORE THEMES	MAJOR CONCEPTS (ORDERED BY FREQUENCY)
A. Designing units of work	Experience, Units	Units, confident, experience, theoretical, inclusive, years, and knowledge
B. Collaborating with another teacher	Confident, Years, Collaboratively	Years, teaching, double, collaboratively, working, confident, teacher, and year
C. Working with special needs students	Confident, Special	Special, students, experience, knowledge, children, confident, and worked

Figure 1 pairs the concept map of beliefs at Session 1 (left side map) with reflections at Session 3 (right side map). Responses to Question 1.1, "Describe your current approach to units of work", provided teachers' general perspective as they entered the study. Teacher responses to Question 1.1 clustered into three interconnecting core themes. The dominating *work* theme clustered concepts of work, unit and units, planning, students, and outcomes. The *work* theme also slightly overlapped themes of *plan* (collaboratively, classroom) and *individual* (individual, goals, and alternate). *Plans* and *individuals* were separate thematic clusters, linked only through work. In comparison, teachers' final reflective statements in Session 3 (right side map) provided a richer and

more integrated set of three themes. The concept of "support" (i.e., students, teaching, and class time) was a point of overlap between three core themes. The dominant theme *teaching* (teaching, planning, ideas, work, plan, and learning) was thus linked with *time* (children, class, activities, and plan) and *students* (with students, teachers, great, and outcomes). Comparison of the two maps suggested that teachers' view of learners, first characterised in terms of *individuals* (alternate and goals), became more broadly focused on *students*, their outcomes (overlapping *time* spent in class activities), and their learning (overlapping *teaching*).

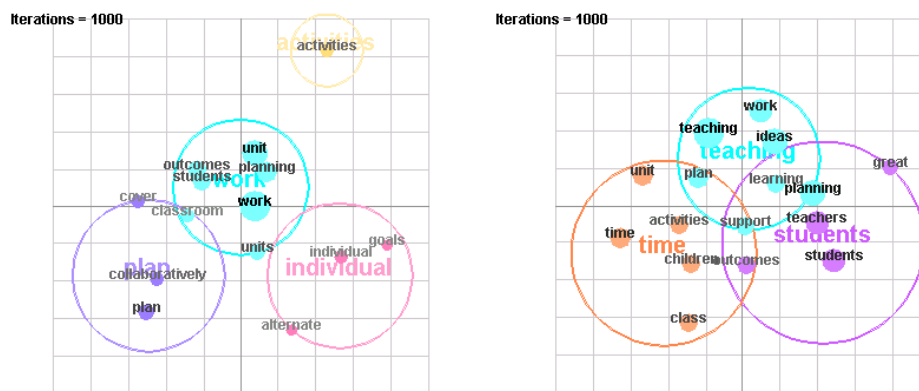


Figure 1. Leximancer analysis of teacher responses (Question 1.1, Session 1 vs. Reflective statements, Session 3).

Comments about co-teaching included "I like the idea" "as an efficient way of using people as resources to the benefit of all students", and "I felt quite inspired listening to some of the positive outcomes" "in particular great and equitable student outcomes, recognition of individual needs and how teachers have gone to such efforts to cater for all students", and "great that everyone commented that all students are benefiting." Many co-teachers commented on the many different approaches used in the study, the "connected language that co-teachers are using- lots of us and we", the "great ideas that may be useful for us", and that "this would be a strategy I would like to use in the future." Clearly co-teachers were developing new perspectives on teaching, and one co-teacher stated, "I work best with bouncing ideas off other adults."

Figure 2 displays the mapped responses to Question 1.3, "In what way are your units of work effective?" (left side), in conjunction with those responses made to Question 2.3, "What is the strengths of this co-designed unit of work?" (right side). Three linear clusters accounted for initial thoughts and beliefs about unit effectiveness. The larger thematic cluster was *unit* (student, detailed, unit, cater, and engaged), but the dominating theme in term of word frequency was *learning* (learning, level). A smaller and separate theme clustered around *students* (students, work). Six weeks later, after teachers co-designed a unit of work, three clusters of text again covered the same kind of topics. However, there

was a reversal in the thematic relationship between the slightly linked clusters of *learning* and *unit*. With teachers responding to strengths of co-design in terms of a more dominant theme of *learning* (ideas, learning, sharing, work, and knowledge), *units* became a lesser appendage that overlapped *learning* in the concept of "work." Moreover, a theme of *flexibility* (with flexibility and children as embedded concepts) emerged from the analysis and reframed the earlier perspective on *students* (left side).

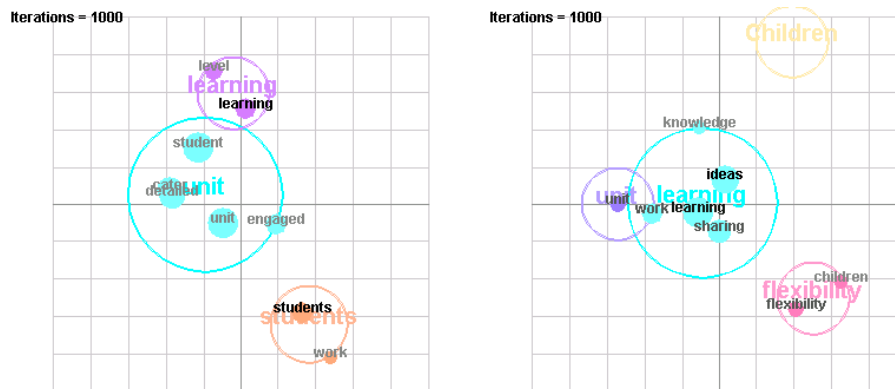


Figure 2. Leximancer analysis of unit of work effectiveness (Question 1.3, Session 1 vs. Question 2.3, Session 2).

Comments regarding the strength of co-designed work included "More ideas, gaps are quickly filled, children's needs are met, workload is halved, and children are more understood and included when planning for them", "the inbuilt flexibility and ability to adapt to the varying needs of children", and "this unit will be unique, highly creative, and extremely motivating." Another comment on the strength of this approach to developing a unit of work was "adaptability and flexibility" [leading to] "increased quality of learning experiences" [and driven by] "learning and sharing expertise, skills, and knowledge."

Figure 3 displays the mapping of teacher reflections at the end of Session 2 (Design). This concept map revealed four clear thematic clusters organised evenly around the vertical and horizontal axes. The dominant themes, which were aligned to the vertical axis, were *teachers* (teachers, interesting, co-teaching, and felt), and *hear* (hear, feel, planning, and ideas). These clusters appeared to concern what individual teachers do and how they are responsive to their partner during co-design. On the horizontal axis, *people* (people group) and *great* (great, teaching, students, and work) were secondary clusters with contrasting emphases about working with groups of people versus working on teaching tasks. The *great* theme and several concepts embedded in other clusters indicated the presence of positive emotional responses (e.g., "interesting", "excited", and "satisfying").

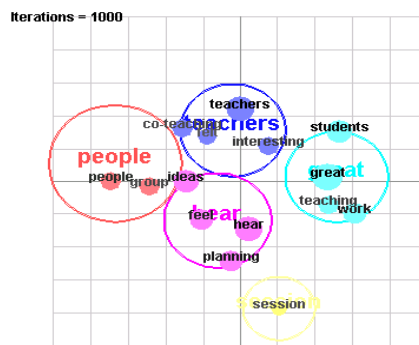


Figure 3.
Leximancer analysis of reflective statements from Session 2.

Co-teachers were engaging in hearing about others' ideas and, at the same time, in processing personal emotions to build self-confidence. One participant stated, "I felt more comfortable [after hearing] that people have similar worries and fears about how co-teaching was actually going to happen" and "good to hear others opinions, ideas and thoughts", "so great to hear ... and get a clear idea of what works and doesn't work. I feel more motivated and more confident." Reflections at this point also displayed a consolidation of new thinking, as one co-teacher stated, "[It is] supportive to have others share valuable ideas and concerns and support how others deal with similar issues—great to hear others ideas—co-teaching working extremely well", while another stated that it "helped to clarify and consolidate thoughts and feelings about the process so far."

Figure 4 contrasted the mapped response to Question 1.5 with Question 3.1 about collaborative teaming to co-design and co-implement a unit of work (see Table 1). "Describe how you currently collaborate with others in your units of work (1.5)" was contrasted with "Describe how you have teamed with your teaching partner(s) to co-design and co-implement this unit of work (3.1)." In teachers' prior collaborative work (left side map), *planning* was the core theme (bringing together concepts of planning, teacher, and school), but other minor themes of *teachers*, *ideas*, and *work* were unrelated to this theme. Small, tight boundaries that encompassed only a few words indicated strong but specific themes. In Session 3 (right side map), teachers' collaboration with others in units of work showed more organisation around the central theme of *unit* (with teaching, sessions, support, planned, activities, and outcomes as embedded concepts), some integration of *unit* with *time* and *co-teaching*, and the emergence of minor and separate clusters of *groups* and *learning*. In particular, the larger boundaries around the *unit* theme encompassing many, closely linked words indicated the powerful influence of this cluster. Co-teaching clearly provided a focus for teacher collaboration about units of work.

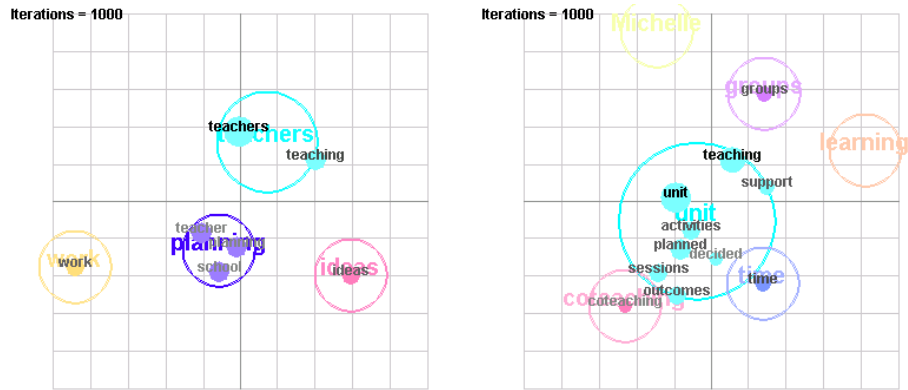


Figure 4. Leximancer analysis of collaborative approaches (Question 1.5, Session 1 vs. Question 3.1, Session 3).

Figure 5 contrasted mapped responses to Questions 1.7 and 3.3 about the impact of collaboration. Baseline themes about how collaboration improved units of work were distributed separately along a single axis (in this case, vertical). Either side of a central cluster of *ideas* were thematic clusters of *people* and *ways* (sharing-special-ways). This simple representation changed substantially in the subsequent mapping of the co-teaching benefits of teaming. The three interlocking themes, arrayed along on a diagonal axis, were centred around a dominant, large, and closely embedded cluster of *students* (linking many concepts of ideas, learning, strategies, work, planning, and plan) that overlapped quite strongly with *activities* (activities, children, class, and skills) and also overlapped somewhat with *teachers* (teachers and teaming).

At the end of Session 3, co-teachers were reporting that the co-teaching process was "more focused [on providing] benefits of sharing skills" and that "these experiences have enriched my understanding of teaching and learning processes—and resulted in me re-thinking other areas of my work" and that "my teaching skills are widening." The form of collaboration experienced as part of co-teaching was recognised as being highly beneficial to all concerned. "Teaming can bring about outcomes that far surpass current expectations."

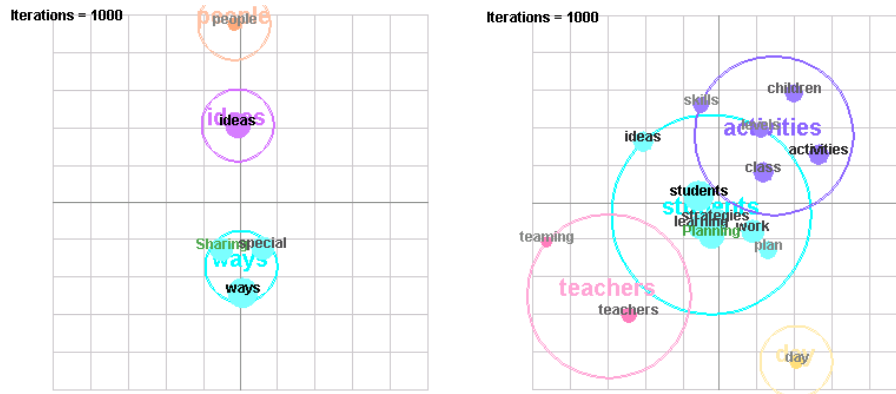


Figure 5. Leximancer analysis of benefits of collaboration (Question 1.7, Session 1 vs. Question 3.3, Session 3).

Discussion

Patterns of teacher thought and beliefs changed despite the relatively short-term time frame of this research cycle. These teachers who chose to be actively engaged in the study, moved in their reflections about units of work. Previously, they planned units of work around goals for individual students, particularly those with disabilities on alternative program, but this theme was the least important theme (see Figure 1, left side map). Following the third session, units of work were planned for all students to achieve learning outcomes: The *students* theme became the most dominant cluster and contained a closely linked array of concepts focused on teachers, planning, and learning. The key concept of support then integrated *students'* classroom work with themes of *teaching* and *time* (to plan units). The overlapping of these themes and the strength of the students themes combined to indicate that co-teaching increased sensitivity to the needs of all students.

Once co-teaching sessions progressed, teachers commented that co-teaching had benefits for many students with diverse needs (viz., learning difficulties, gifted and talented), and support was not confined to students with disabilities and their access to regular curriculum. After teams shared their experiences in developing their respective units of work with all teams, very explicit remarks about these benefits were made and confirmed by colleagues across all teams. Weiner and Murawski (2005) also reported the changed emphasis on "our" students rather than "yours" and "mine" in inclusive approaches.

Personal and interpersonal aspects of co-teaching processes showed changes. Teachers expressed very positive emotional responses from the outset (e.g., very excited, enthusiastic, and optimistic). As the study progressed and as partnerships and self-

awareness (through reflective processing of partnership experiences) developed, such remarks displayed increased feelings of being more confident and *comfortable* in working together. These teachers had previous experience in teaming (e.g., two regular teachers working together with all students, and regular and special educators working together on an individual student's IEP goals). Their co-teaching experiences, however, enabled them to deliver instruction together in the one room. In a co-taught class, they were able to experience and "enjoy" the sharing and blending of expertise, and they often stated that they felt "valued" by their partner. The regular educators were able to expand their skills in specific instructional adaptations, and the special educators were able to expand their skills in delivery of regular curriculum content.

The findings of this study of co-teaching in primary schools are consistent with aspects of an earlier study of Queensland secondary schools (Rice & Zigmond, 2000). Both studies have reported deepening appreciation of the benefits to teachers in relation to their changing roles as partners and benefits to students in relation to their changing feelings of responsibility for all students. The present study has been focused on the educational process in terms of the planning and delivery of instruction to all students rather than on actual student learning outcomes. At this midpoint of this cycle, these findings were very encouraging.

Conclusion

The methodological design of baseline-intervention comparisons of planning and teaming provided a structured approach to improving the understanding of co-teaching process. Moreover, this structured design enabled a varied application of the Leximancer program for analysing qualitative content, in order to determine whether there was a shift in teacher perspective. This study has two more phases of implementation and evaluation, and it will be interesting to observe whether shifts in perspective continue to be evident. These final phases will also provide opportunity to observe whether the same themes in thoughts and beliefs continue to be emphasised, to branch out into other themes, or to evolve in a more unpredictable fashion.

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Notes

¹An education adjustment is "a measure or action taken by an education provider that has the effect of assisting a student with disability to participate in education on the same basis as a student without disability, and can include an aid, a facility, or a service that the student requires because of his or her disability (*Education Adjustment Program: Guidelines & Procedures*, published by Department of Education and the Arts, Queensland, 2005, p. 6).

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