

# Teacher reflections on co-teaching a unit of work

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## Abstract

This Australian study examined the emergence of collaborative processes when introducing co-teaching a unit of work into classroom practice. Six teams of regular and special educators at three primary schools (students aged 6 to 12 years) volunteered to systematically reflect on their co-teaching activities to design, implement, and evaluate a unit of work across the second half of the teaching year. A university-school collaboration scheduled five sessions of action learning in one common school-based location after school hours. Teaching teams and university staff came together in these sessions in order to share perspectives and to document reflections-on-action. Teacher reflections about co-teaching for their respective unit of work and grade level at the start of this project underwent clear changes throughout the educational process from design, implementation, to evaluation. During ongoing co-teaching activities, teachers reorganized their feelings and thoughts about roles and responsibilities in regular classrooms for students with diverse abilities and needs. By the end of the project, moreover, teachers in these teams were engaging in spontaneous choices to embed co-teaching in ongoing practice, to extend their co-teaching into new units of work and into forward planning for students with disabilities coming into a new year's classes, and, more broadly, to advance co-teaching into whole-of-school practice.

## Introduction

Santamaria and Thousand (2004) identified “active collaboration, co-teaching, and differentiated instruction” (p. 13) as inclusive practices likely to improve access to core curriculum in general education classrooms for all students, including those with disabilities. In the USA, a collaborative partnership between regular and special educators has been recognised as a critical enabler of inclusive practice in a common learning environment (Frey, Fisher, & Henry, 2005; Peterson & Hittie, 2003; Wood, 1998). A collaborative style of teaching makes pragmatic sense when students with disabilities take their rightful place alongside peers in regular classrooms—whether with federal legislative support in the United States of America (USA) or with federal policy support in Australia that urges but does not mandate access. Yet a history of failed efforts to implement meaningful inclusion in regular schools has generated doubts about the viability of some inclusive practices (Santamaria & Thousand, 2004).

Co-teaching practice is an experimental practice with as yet undefined protocols for both teachers and students. Despite clear philosophical arguments for structural rearrangement of schools to facilitate inclusion through co-teaching practice, empirical evidence that co-teaching strategies are an effective inclusive practice has neither widespread support in international and local research literature nor routine use in whole schooling. Typically, it has been the primary responsibility of special educators in the school system “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 access and individualisation in inclusive settings, existing classroom routines of the regular educator and the special educator need to change (Murawski, 2005).

## An Australian Study of Co-Teaching

Co-teaching is well-placed to become a key process for inclusion of all students in regular education classrooms and for authentic, multilevel instruction in core curriculum, which have been identified as major principles of the whole schooling movement. Co-teaching units of work has provided a way forward because this curriculum activity pervades everyday classroom practice (i.e., co-teaching a unit of work has goodness of fit with regular teaching roles). For this reason, units of work allow teachers to focus on the essential components of curriculum and to provide differentiated instruction to meet the needs of all students in the class. Units of work press for sound educational practices in differentiated instruction (e.g., content with multifaceted materials, process with multifaceted delivery modalities, and multifaceted assessment products) that provide authentic, multilevel instruction for all students (Tomlinson, 1999). Units of work also promote everyday opportunities for collaborating teachers to share expertise, decision making, and accountability for outcomes. “The most important component of co-teaching in a school is helping the staff become united” (Nordlund, 2003, p. 87). Co-teaching partnerships between regular and special educators can combine complementary teaching competencies in core curriculum and instructional methodology, respectively, to work towards a common goal for all students.

Co-teaching strategies have been recommended in the USA for at least 15 years to accommodate the diverse range of learners in regular classrooms (Bauwens, Hourcade, & Friend, 1989); Villa, Thousand, & Nevin, 2004). Co-teaching has been described as “a new variation of a not-so-new practice” (Reinhiller, 1996, p. 34) of teaching partnerships. That is, co-teaching has been viewed as a process to increase collaboration between regular and special educators as an extension of traditional team teaching. This relationship between regular and special educators, initially described by Bauwens et al. (1989) as cooperative teaching (Murawski & Swanson, 2001), was shortened to co-teaching by Cook and Friend (1995). When regular and special educators have actively worked in partnership to deliver “substantive instruction to a diverse or blended group of students in a single physical space” (Cook & Friend, 1995, p. 2), this arrangement has essentially continued a team teaching tradition.

Roles and responsibilities across the educational process from instructional planning to evaluation of outcomes have been open to negotiation and other collaborative interactions by co-teaching partners. Such negotiations have addressed ways that co-teaching partners can routinely share responsibility for students with disabilities (e.g., how students are grouped and how teaching is scheduled). To facilitate negotiations of this kind, Villa et al. (2004) offered a decision-making matrix, in which particular combinations of people and tasks could take four levels of responsibility (i.e., primary, equal, secondary, and some input into decision making). Because shared and equitable tasking is not a necessary precondition for a genuine co-teaching partnership, ever-expanding co-teaching options have been reported (Cook & Friend, 1995; Murawski, 2005; Vaughn, Schumm, & Arguelles, 1997; Villa et al., 2004; Walsh & Jones, 2004). Murawski (2005) argued that switching roles and students are key tenets for co-teachers to achieve more parity of responsibility and accountability. Hence, the regular teacher does not always provide large group instruction, and the special education teacher in that classroom is not always attached to specific students with disability. Weiner and Murawski (2005) reported evidence of a changed emphasis on “our” students rather than “yours” and “mine” in inclusive approaches.

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Collaborations across the educational process have involved planning and design of units of work (e.g., the pyramid planning model of Schumm, Vaughn, & Harris, 1997); implementation (e.g., parallel teaching in delivery of instruction); and evaluation (e.g., Austin, 2001; Magiera & Zigmond, 2005; Walther-Thomas, 1997). To date, collaboration about planning and evaluation has generated outcomes typically associated with team teaching. Planning has conventionally included the co-design of units of work and the shared coordination of IEP meetings. The unit of work has been the focus for joint instruction in the pyramid planning model. Wehmeyer (2002) recommended the Schumm et al. (1997) model in order to allow students with disabilities to experience authentic learning in core curriculum (see, also, Miller, 2002). A more systematic and integrated approach to assessment of a co-taught unit of work (Gately & Gately, 2001) allows for evaluation of shared learning outcomes of all students, adjustment of performance standards for most students, and progress monitoring for some students.

The approximately 30 dedicated publications in mainly American research literature on co-teaching collated by Thousand, Nevin, and Villa (2006) have been more indicative than substantive. That is, future directions and research possibilities have been outlined, but there is room for more detailed investigation. In recent years, Australian schools have sought to provide relevant schooling for all students through a variety of inclusion models, approaches to differentiated instruction, and collaborative ways of teaching (Spedding, 2005). In the policy-based environment of Australian inclusion, individual teachers have typically been asked to work from policy documents without practice scaffolding. Traditional teaching practice and existing school structures have diluted and filtered the scale and sustainability of school reform (Bryer & Main, 2005). Initiatives in educational reform imported from the USA and the UK have fostered very little Australian research on effectiveness. Despite some Australian research on school-wide inclusion (e.g., systematic assessment of whole-school practice using the British Index of Inclusion by Deppeler and Harvey in 2004 in Victoria and by Jenkins and Brook in 2005 in Western Australia), systemic changes into whole-of-school inclusive practice have yet to make any serious impact.

Because the primary stakeholders in co-teaching research are teachers, educational researchers from a state university in Queensland have taken the view that an understanding of teachers' perspectives on co-teaching partnerships would be likely to lead to operationalization of relevant and "do-able" practice outcomes in this Australian state's classrooms. A methodology for action learning has been used effectively to inform and improve inclusive practice (Beamish, 2004). Participatory action research has been a widely used approach to everyday issues in education, health, and social planning (Beamish & Bryer, 1999). Santamaria and Thousand (2004) specifically identified collaboration as a key feature of successful research-to-practice partnerships between university and schools. Active engagement of practitioners as co-researchers is a mechanism adopted by some educational researchers in order to foster grassroots support for research projects about effective processes of recommended practice implementation. In a range of recent research-to-practice initiatives that preceded this co-teaching study, a participatory approach to university-school collaboration has been employed in studies of acceptance and implementation of recommended practice in the Queensland early special education service (Beamish, 2004), generation of a practice inventory for a large special school (Beamish, Bryer, & Hartshorne, 2006), and school-wide practice in positive behavioural support for a secondary school (Bryer, Beamish, Davies, Marshall, Caldwell, & Wilson, 2005).

## What Teachers Think and Feel about their Co-Teaching Partners

The nature of effective co-teaching relationships and their meaning to the co-teaching partners has attracted some ongoing research interest (e.g., Bergren, 1997; Nowacek, 1992; Villa et al., 2004). A major focus of empirical investigation 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). A mix of traditional survey methods, interviews, and classroom observations has been used to explore teachers' beliefs about and perceptions of co-teaching. To date, teacher reporting in both elementary (early primary in Australia) and secondary classrooms has produced extensive descriptions of benefits, barriers, and practice recommendations. Each study has added another unique contribution from different educational contexts to this listing.

For example, Austin (2001) conducted a large-scale North American survey of 139 co-teachers (kindergarten through 12<sup>th</sup> grade) from nine school districts in New Jersey. Austin constructed the Perceptions of Co-Teaching Survey (PCTS) 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. Most teachers reported that the co-teaching experience was worthwhile and mutually beneficial in the survey and interviews, even though participation in the study was usually involuntary. General and special educators also agreed that the regular educator does more than their visiting special education partner in the inclusive classroom. In the survey data, however, most teachers in both groups agreed that (a) co-teachers should establish and maintain specific areas of responsibility and (b) many of the recommended practices and school-based supports being accessed were not as effective as anticipated. About 90% of special educators and about 70% of general educators agreed that teacher preparation should incorporate co-teaching experiences. Interview data confirmed the positive direction of survey findings and, in some cases, added a degree of specificity to reported beliefs. For example, a reduced student-teacher ratio was considered 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 from nine teachers in two schools in south-western Pennsylvania. They used mainly interviews, combined with classroom observations. Despite contextual differences in these school systems, Australian and American teachers reported similar beliefs in relation to six key themes. These themes related to the importance of school-wide 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. In broad terms, regular educators expressed doubts about the general instructional skills of special educators (see, also, Murawski, 2005). They 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 six themes listed by Rice and Zigmond have suggested many avenues for further investigation of the co-teaching educational process and its effects on student groupings for teaching, learning, and assessment (see Table 1).

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*Table 1**Six Themes about Co-Teaching Identified by Australian and American Teachers*

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

*Note.* From "Co-teaching in secondary schools: Teacher reports of developments in Australian and American classrooms," by D. Rice & N. Zigmond, 2000, *Learning Disabilities Research and Practice*, 15, pp. 192-196.

Another focus of research interest has been the nature of desirable interpersonal characteristics of co-teachers and their developing rapport in daily relationships (Gately, 2005; Murawski, 2005). For example, Walther-Thomas, Korinek, McLaughlin, and Williams (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). This emphasis on skilful team actions related to teacher attributes and professional competencies was focused on reflection-in-action (Atkins & Murphy, 1993). 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 acknowledged the importance of a reflective dimension to co-teaching and its intra- and interpersonal dynamics (i.e., reflection-on-action).

### **Reflection on Thoughts and Feelings**

Tomlinson (1999) identified reflection as an important teacher quality that delivers effective differentiated instruction to all students. "As you work your way into a differentiated classroom, be sure you think your way into it as well. When you try something new, take the time to reflect before you take the next step" (Tomlinson, 1999, p. 98). She also advised teachers to cultivate analytical skills as their differentiated classroom evolved, in order to promote a learning community in the classroom as well as to obtain feedback about instructional successes and student responses. Moreover, Villa et al. (2004) argued that co-teachers needed to be reflective practitioners in order to build rich co-teaching partnerships and in order self-assess and reflect on the degree or quality of engagement with co-teaching practice components. They provided a 34-item checklist that rated features of co-teaching partnerships (e.g., "We are both viewed by our students as their teacher" was one item). Furthermore, Miller (2002) recommended the pyramid planning model specifically because "it helps teachers reflect on what needs to be taught so that all students in the class have the opportunity to learn at least a portion of the content" (p. 40).

Reflection has been promoted as a means to engage in shared inquiry about teacher practice in order to expand idiosyncratic understandings of this professional role into a genuine community of practice (Wesley & Buysse, 2001). Individual teachers have also used reflection-on-action in order to self-assess and improve their individual classroom practice (Atkins & Murphy, 1993). Bain, Ballantyne, Mills, and Lester (2002) developed a reflective framework for practice self-assessment and improvement. The writing scale was designed by Bain et al. in order to guide open-ended self-report about teaching experiences. Preservice teachers used this approach to reflect upon their developing practice in practicum and in academic coursework. The 5Rs approach to reflection identified five components of self-assessment. Thus, a written reflection began with an initial description of a practice event, situation, or activity (“Report”), followed by two phases of emotional processing of the event (“Respond” to immediate feelings in response to the activity and “Relate” that feeling to a more general emotional pattern of connections with one’s personal history and practice experience), through to two phases of cognitive processing (“Reason” and engage in cognitive self-assessment of one’s awareness and analysis of a practice event and “Reconstruct” and engage in forward planning for improved practice).

This hierarchy of components formed a scaffold, over time, to higher-order reflection on practice. Moreover, 5Rs reflective writing has been found to be a useful research tool in collecting educational data in universities and schools. Furthermore, recent research has emphasised the important role of the two emotional-processing components of the 5Rs scale. Responding and relating to a situation have enabled teachers to come to terms with their personal and sometimes reflexive reactions to classroom events and to interpret that personal reaction in terms of their prior history. That is, teachers have been able to recognise their affective susceptibility to difficult situations rather than to either ignore or “intellectualise” their responses (e.g., precipitate a pseudo-professional judgement about student misbehaviour, parental demands, or colleagues’ criticism).

For example, an investigation of how new practicum supervisors managed their changed role from teacher colleague to university supervisor showed that formal writing about these emotional components facilitated the change from a comfortable teacher-school relationship to a different and more challenging supervisor-school relationship (Martschinke, Waugh, Beamish, & Davies, 2004). It appears that this aspect of the 5Rs framework offers a valuable processing tool for any practitioner entering a new situation. Reflections on participation in a co-teaching initiative could also be presented in a context of shared inquiry about co-teaching practice (see, for example, Roth, Tobin, & Zimmermann, 2002). *Aim*

This co-teaching study aimed to provide insight into how teachers’ thoughts and feelings change as they engage in collaborative interactions across the educational process from unit design to evaluation. A reflective writing process during the phases of the educational process was used to investigate qualitative changes in teacher views of co-teaching between previous practice (i.e., baseline approaches to unit design and teaming between regular and special educators) and emerging practice (i.e., co-teaching intervention). For each phase of the project, questionnaire design used the 5Rs framework. Specifically, the present study aimed to explore patterns of thoughts and feelings about co-teaching and about students being co-taught that emerged during a unit of work. In particular, themes identified by Rice and Zigmond (2000) guided efforts to identify meaningful changes in perceived roles and responsibilities as volunteering teachers progressed through the educational processes of co-teaching a unit of work.

In order to clarify how teachers related to each other and to students around a unit of work, therefore, reflections about units of work and collaboration used in everyday routines prior to their co-teaching experiences were used to provide a practice baseline for a co-teaching project involving four intervention phases: design, teaming, implementation, and evaluation. Of particular interest were the nature of changes in approach to unit design and staff collaboration, teacher thoughts about specific changes in collaborative teaming practices involved in co-teaching, their feelings about co-implementation, and their evaluation of the project and its possible effects on future teaching practice.

## Method

### *Participants*

Three schools in one educational district in Queensland were approached to participate in the study. Several regular and special educators in these schools volunteered to participate. They formed six teams. Each team had one special education teacher, who was usually familiar with the 5Rs approach to reflection (Bain et al., 2002) from either undergraduate training or from practicum mentoring of preservice teachers in the special education program. These special educators informed their co-teaching partner(s) about the use of this framework. Three teams had one regular teacher, but the other three teams had two regular teachers. Some pairs of educators were team teaching before this study, and the co-teaching project was built upon existing arrangements. Year levels ranged from Year 2 to Year 6, and teams worked on various units of work (e.g., science, literacy, history, technology).

The 15 teachers were female except for one regular teacher, and the range of their ages clustered into a group from 25-40 years ( $n = 10$ ) and a group over 40 years ( $n = 5$ ). 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) but had more extensive undergraduate training (4 vs. 2.5 years). That is, some older regular educators had 2- and 3-year qualifications. All special educators had a Bachelor of Special Education degree. In their training, they shared with regular education students the first 2 years of a primary education degree program (i.e., ages 6-12 years; years 1-7). They then completed 2 years of specialist training in, for example, individualised education programming, curriculum accommodation, positive behaviour support, and consultation.

The co-teaching project, therefore involved voluntary changes in typical staff-student arrangements for these regular and special educators. In the three schools, regular teachers were expected to accommodate individual students with various disabilities (see Education adjustment program: Guidelines and procedures, published by Department of Education and the Arts, Queensland, 2005, p. 6). However, a Special Education Unit (SEU) catered for students with more significant disabilities (Wolery & Schuster, 1997) such as dual diagnoses in intellectual impairment and autistic spectrum disorders. These students therefore, spent most school time in these self-contained classrooms. Because full inclusion was not regarded as the preferred option for these students, they experienced some combinations of outreach into and withdrawal from regular classrooms for some social and academic activities. The special educators participating in this study previously worked with students and teacher aides in these units.

### *Materials used to Gather Reflections*

The project was scheduled to run in five sessions, with sessions of the action learning project being matched with phases of co-teaching a unit of work. Open-ended survey questions were designed for each phase of the project to elicit the current thinking and beliefs of teachers. For the present study, the two emotionally-oriented 5Rs components were collapsed into a single "feelings" statement about a "How do you feel about [phase]" of the educational process of teaching a unit of work. Thus, the first question referred first to describing (i.e., report) each phase of the unit of work (i.e., five project phases); later questions asked about feelings (respond-and-relate); about effectiveness, improvements, and strengths (reason); and about different ways to handle each phase next time (reconstruct).

Both the baseline phase and the evaluation phase involved a double set of reflective questions. Session 1 was used to establish baseline on previous practice in designing units of work and collaborating with other teachers. Session 5 was used to finalise both unit evaluation and project evaluation. In the baseline phase of co-teaching a unit of work (Session 1), moreover, all teachers were asked three preliminary 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.

Table 2 provides a matrix summary of the content and structured reflective questions for these five sessions. Session 1 questions were organised into two columns of 4 reflective questions, from 1.1 to 1.8 (see Columns 2 and 3 in Table 2). Related questions in the co-design (Session 2) and teaming phases of co-teaching a unit of work (Session 3) provided comparable questions. Teacher beliefs and feelings at baseline (Columns 2 and 3) could then be compared to responses in Session 2: Design (Column 4) and Session 3: Teaming (Column 5), respectively. Reflective questions about co-implementation and evaluation continued to explore the teachers' emerging experiences.

Each of the five sessions of the project on the unit of work followed the same procedure. That is, each teacher wrote formative 5Rs reflections to begin the session (with questions e-mailed to everyone beforehand and hard copy available at the session); all teachers took part in shared inquiry across the teams (with group discussion for either the whole group or mixed small groups) in each session; and each teacher wrote a summative personal reflection on a small card to end the session.

Thus, throughout the project, each teacher generated 27 reflective responses (4 x 7 sets of questions, minus a redundant final question describing a unit of work) and 5 summative reflections at the end of each respective session. Data from the 15 teachers, combining responses from special and regular educators into a co-teaching data set, were transcribed and collated into 32 single Word files for content analysis.

The methodological design of baseline-intervention comparisons of co-teaching phases provided a structured approach to improving the understanding of co-teaching process. Moreover, this structuring design enabled shifts in teacher perspective across the phases to be identified. That is, comparison of concept maps from the Leximancer program (Smith & Humphries, 2005) could reveal consolidation (e.g., continued emphasis on same themes and concepts in thoughts and beliefs), progressive changes (e.g., branching out into new themes and concepts), or reorganisation of thoughts and feelings across the project phases (e.g., taking a more unpredictable course).

### *Co-Teaching Procedures*

Five action learning sessions were scheduled in after-school time. Co-teaching teams and university staff came together in a school setting in order to interact, exchange information, and share perspectives on instructional and assessment features of respective units of work, resources (e.g., research literature), and emerging thoughts and feelings. Session discussions and presentation of unit materials (either whole or small group) were focused on the session's collaborative theme (e.g., baseline, co-design, teaming). Session length was contained to 1.5 hours. Refreshments were provided at the start of the session, and some participants adjourned to a restaurant afterwards (thereby fostering the community of inquiry).

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 et al., 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 funding of single-day teacher release from school duties would enable the regular educators in teams to support co-planning units of work and that each team needed to negotiate partners' preferred release time and use of that time.

### *Data Analysis by the Leximancer Software Package*

Content from participating teachers' responses to questions (see Table 2) was analysed with the innovative Leximancer 2.2 (Smith, 2005) software package developed by cognitive scientists at The University of Queensland. Automated interpretable output from default settings in this approach to content analysis avoids subjective bias in manual coding of complex text.



**Table 2**  
**Structured Design for Four<sup>th</sup> Reflective Questions over Five Action Learning Sessions, Paired to Examine Phase Changes of Co-Teaching**

5Rs	Session 1 Baseline: Unit of Work	Session 1 Cont. Baseline: Collaboration	Session 2: Design	Session 3: Teaming	Session 4: Implementation	Session 5 Evaluation: Unit of Work	Session 5 Evaluation: Co-Teach Project
Reporting	1.1. Describe your current approach to units of work	1.5. Describe how you currently collaborate with others in your units of work.	2.1. How are you co-designing?	3.1 Describe how you have teamed with your teaching partner(s) to co-design and co-implement this unit of work.	4.1. Describe how you implement units of work.	5.1. Describe how you evaluated your unit of work.	
Respond	1.2. How do you feel about your units of work?	1.6. How do you feel about working with others in your units of work?	2.2. How do you feel about co-designing units of work?	3.2 How do you feel about teaming with your teaching partner(s) on this unit of work?	4.2. How do you feel about the implementation of your units of work.	5.2. How effective do you feel your unit of work has been?	5.5 How do you feel about this project?
Reason	1.3. In what way are your units of work effective?	1.7. In what ways does collaboration improve your units of work?	2.3. What are the strengths of this co-designed unit of work?	3.3 What are the benefits of the current teaming activity in light of other collaborative activity you routinely undertake?	4.3. What are the strength of your implementation of the units of work?	5.3. At this point in time, what does co-teaching mean to you?	5.6. What did you consider are the strengths of the project? 5.7. What did you consider are the weaknesses of the project?
Reconstruct	1.4. How would you like to do your units of work differently?	1.8. How would you like to collaborate differently in relation to your units of work?	2.4. Next time, how would you co-design differently?	3.4 Next time, how would you team differently with your teaching partner(s) to co-design and co-implement a unit of work?	4.4. Next time, how would you implement your unit of work differently?	5.4. Next time, how would you co-teach a unit of work differently?	5.8. How would you prefer to be involved in a co-teaching project in the future?
Group Discussion	Whole group	Small groups mixing regular and special educators from different teams and schools (discussing design, teaming, and facilitators and barriers to implementation respectively)	Whole group	Whole group	School-based team discussions about co-teaching plans for 2006	Whole group	
Personal Reflections	Reflective statement (individual teachers)	Reflective statement (individual teachers)	Reflective statement (individual teachers)	Reflective statement (individual teachers)	Reflective statement (individual teachers)	Reflective statement (individual teachers)	

For each session file on a reflective question, the most immediate descriptive outputs of this tool are a ranked list of frequent concepts in text and a concept map. The software has a clear, justifiable, two-phase process of selecting text from a data file and arriving at a meaningful interpretation (Smith & Humphries, in press). First, in conceptual analysis of high-frequency themes in text, a stable shortlist of highly relevant concepts is derived from a thesaurus of terms generated from frequently used words (concept seeds) in scanned text. Second, in relational analysis, the semantic connections among themes are quantified by sequential scanning of text blocks for co-occurring concepts, and a concept map displays main themes and their respective relationships.

A text browser in Leximancer allowed cleaning of text in a data file. Subsets of concepts can be either merged or excluded. Text items of no research relevance (i.e., “It would seem”) were discarded. Like-meaning words (i.e., “student” and “child”) were merged. This software also allowed for joint or separate analysis of text from different files and for tagging of variables from different files (e.g., from different times, people, etc.).

Qualitative displays of text output, therefore, have been derived from these essentially quantitative analyses of content. The information about content analysis contained in this visual summary of concepts and their co-occurrences can be shaped by three slide bars that (a) vary the number of visible concepts (i.e., from the most frequent concept to all concepts); (b) align themes to horizontal or vertical axes improve interpretability; and (c) rotate the pattern to identify prototypical high-frequency concepts around which other concepts cluster. 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.

Protocols for visual interpretation of a Leximancer concept map have been based on (a) brighter and larger dots for higher frequency words, (b) closer positioning of dots with stronger relationships that were spoken about in same text segments of about three sentences, and (c) more centrally located words being most central to the text meaning (Smith & Humphries, in press). 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.

In order to track meaningful patterns for each action phase and its questions, all content analyses were performed on separate rather than conjoint Word files. Inspection of individual maps and 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. Rather than a full listing of themes and concepts in ranked order for summarised text for each question, selected concept maps illustrating changing ideas and beliefs and associated feelings were the focus of the present results.

## Results

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

Table 3

*Dominant Core Themes and Major Concepts across Three Domains of Previous Practice*

<i>Domains Of Work</i>	<i>Core Themes</i>	<i>Major Concepts (Ranked By Frequency)</i>
<i>A. Designing units of work</i>	<i>Experience, Units</i>	<i>Units, confident, experience, theoretical, inclusive, years, knowledge</i>
<i>B. Collaborating with another teacher</i>	<i>Confident, Years, Collaboratively</i>	<i>Years, teaching, double, collaboratively, working, confident, teacher, year</i>
<i>C. Working with special needs students</i>	<i>Confident, Special</i>	<i>Special, students, experience, knowledge, children, confident, worked</i>

In order to display changes at project midpoint, the concept map of reports from Session 1 Baseline (left side map) was paired, in Figure 1, with summative reflections about Session 3 Teaming (right side map). Responses to Question 1.1, "Describe your current approach to units of work", provided a general perspective as teachers entered the study. Teacher responses to Question 1.1 clustered into three interconnecting core themes. The work provided the linkage between planning and individual theme. The dominating work theme clustered frequent concepts of work, unit and units, planning, students, and outcomes and slightly overlapped themes of plan (collaboratively, classroom, and cover) and individual (individual, goals, and alternate).

By comparison, teachers' summative reflections about teaming at the end of Session 3 (right side map) provided a richer and more integrated set of three themes with broadened, intensified, and refocused prototypical conceptual themes. The dominant theme teaching (teaching, planning, ideas, work, plan, and learning) was interlinked 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). The concept of "support" was a point of overlap between three core themes (i.e., teaching, students, and class time). The visual map as a whole revealed an active focus on the classroom consistent with experiences of working with partners on planning for students and finding time to plan.

Comments about teaming made in the final individual reflections of Session 3 indicated a strong focus on benefits to all students. They included "I like the idea...as an efficient way of using people as resources to the benefit of all students", "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 respective units of work. Comments referred to 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." One co-teacher also stated, "I work best with bouncing ideas off other adults."

The midpoint of the project also illustrated the emergence of collaborative changes. Figure 2 shows contrasting concept maps about the impact of collaboration from responses to Question 1.7, "In what ways does collaboration improve your units of work?", and to Question 3.3, "What are the benefits of the current teaming activity in light of other collaborative activity you routinely undertake?" Teacher views based on previous practice were distributed along a single vertical axis as separate themes. A simple ideas theme was bracketed by equally small thematic clusters of people and ways (sharing, special, ways). In the subsequent mapping of the co-teaching benefits of teaming (right hand side), this simple representation merged substantially into three large themes, still arrayed along a single axis, but with co-occurring concepts showing overlapping text.



Figure 1. Leximancer analysis of teaming responses (Question 1.1, Session 1 vs. Final reflective statements, Session 3).

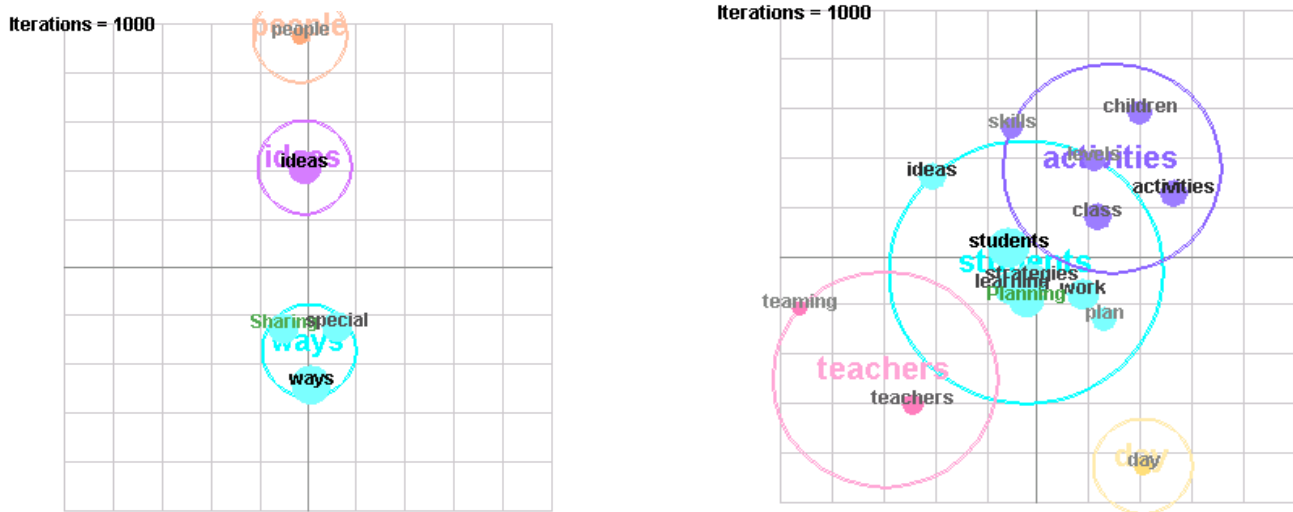


Figure 2. Leximancer analysis of benefits of collaboration (Question 1.7, Session 1 vs. Question 3.3, Session 3).

At Session 3, a dominant, large, and closely interlinked theme of students (linking many concepts of ideas, learning, strategies, work, planning, and plan) overlapped quite strongly with activities (activities, children, class, and skills) and also with teachers (teachers and teaming). Teachers were reporting that they were “more focused [on providing] benefits of sharing skills”, 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 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 3 displays aspects of co-teachers' feelings about their implementation of their unit of work and, finally, about their participation in the study. Figure 3 (left hand side) displays the mapped responses to Question 4.2, "How do you feel about the implementation of your units of work?" The teachers' summed responses to this question indicated a single major theme of feelings about the unit consistent with this question. The tone of the concepts indicates positive emotions and feelings of achievement. The minor satellite themes of *time* with children, implementation of *work*, and how teachers *feel* about students from the SEU supported the generally positive tone. Figure 3 (right hand side) displays the mapped responses to Question 5.5, "How do you feel about the project?" In this figure, the *project* theme overlaps the larger *opportunity* theme, in which concepts of professionals, sharing, and students co-occurred in order to provide better opportunities for all students. The vertically aligned linear display of themes could be interpreted as the project providing shared opportunities for professionals to be better involved in planning for all students.

Figure 4 shows an emphasis on reconstruction in reflection. Three distinct, strongly articulated, and slightly overlapping themes dominated the final whole-group discussion, which focused on preparing the school teams for changes in the coming year. Each separate theme provided a shared perspective on the inclusion of students with disabilities into core curriculum. The school theme was also linked to a minor project theme about how the project fostered this school approach. The think theme about people and SEU kids and other children in the regular classroom was linked to a minor group theme on classroom groupings of children. The work theme about the role of the special education teacher in the regular class was linked to a minor team theme that actually involved co-occurring concepts of time, feel, and team across three theme boundaries (e.g., expected difficulties ahead in having time to do thorough unit planning and feelings about working in teams). A separate minor room theme also concerned expected structural problems next year about adequate classroom spaces and proximity to withdrawal room: Although expressed mainly by teachers from one school, these issues affected all schools.

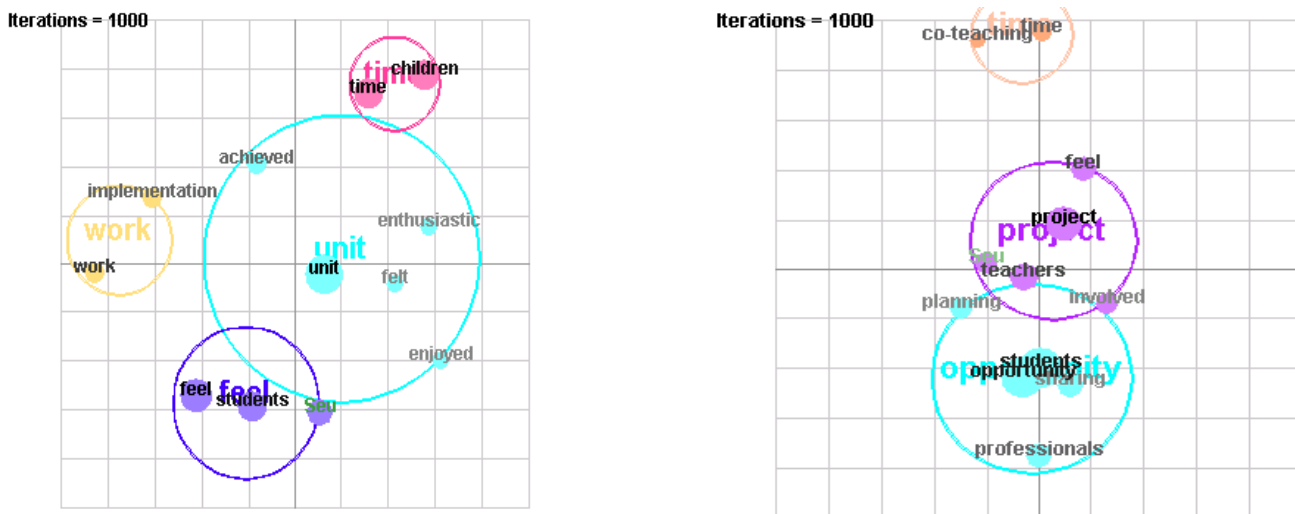
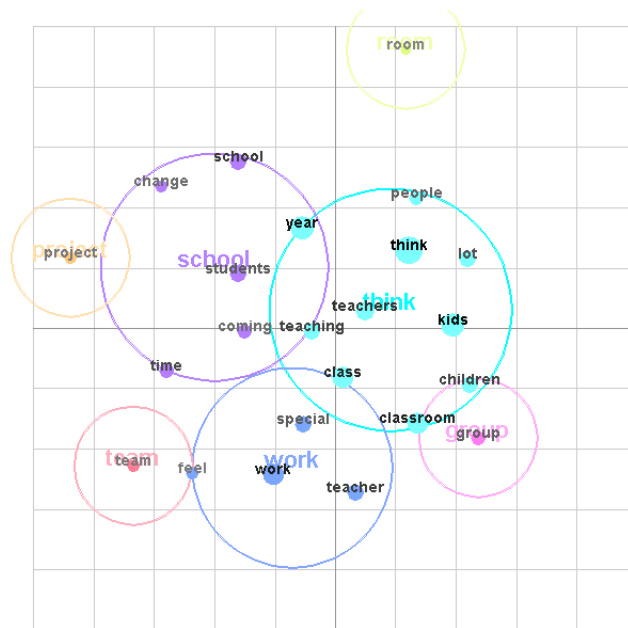


Figure 3. Leximancer analysis of how teachers felt about co-implementation of units of work (Question 4.2) and about the project (Question 5.5).



**Figure 4. Leximancer analysis of Session 5 final shared inquiry among five co-teaching teams.**

## Discussion

The previous practice of these teachers indicated confident practitioners who brought an isolated “egg-crate” (Lortie, 2002) perspective to their view of the inclusive classroom (Figure 1, left side map and Figure 2, left side map). That is, their approach to unit planning could allow for consultation, curriculum design, and students with disabilities as somewhat separate compartments. They could share their ideas and special ways of approaching curriculum tasks with other people, they could prepare alternative work for individuals with disability, and they could prepare a unit of work. However, these competencies were fairly discrete. All teams engaged in parallel teaching of heterogeneous groups as the characteristic approach to joint implementation of instruction. Explicit differentiated feelings about co-teaching were evident by the fourth session. Feelings about their co-teaching experiences were overtly positive in written reflections about implementation and project evaluation (see Figure 3) and in shared inquiry (see Figure 4).

Positive judgements could be reasonably anticipated from the volunteer status of the teachers and the groundswell of interest in co-teaching in these schools throughout this university-school research collaboration. Yet, it was clear in the fifth and final session that these co-teachers were proactive in their respective school’s forward planning. All but one team attended the final session, and these five teams engaged in a vigorous final session of shared inquiry and exchange of future action planning. From voluntary participation, teachers were now engaging with other teachers and with administration. In relation to the sixth co-teaching theme identified by Rice and Zigmond (2000), therefore, these co-teaching teams were influencing administrative support and school attitudes towards inclusion. The perceived effectiveness of the co-teaching experiences was also fostering wider acceptance of inclusion, with some teachers seeking students with disability in order to take part in the co-teaching process (see Table 1).

Patterns of teacher thought and beliefs changed despite the relatively brief time frame of this research cycle. These teachers, who chose to be actively engaged in the study, reorganised and branched out 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 learning 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 that 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 present study has been focused on the educational process in terms of the planning, delivery, and evaluation of instruction to all students rather than on actual student learning outcomes. The findings of this study of co-teaching in primary schools are consistent with aspects of an earlier study of Queensland secondary schools (Rice & Zigmund, 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.

## Conclusion

These teachers volunteered to participate in an action learning cycle of reflections on the educational process of co-teaching a unit of work. Contrived collegiality has been considered less likely to attract positive perceptions than those of volunteers in educational teams generally (Hargreaves & Dawe, 1990) and specifically in co-teaching volunteers (Mastropieri et al., 2005). These teachers brought confidence in their current practice, some previous interest in co-teaching, and the esteem of their colleagues to this project. Smart change begins "with teachers already reflective about their practice, sensitive to students, flexible in instructional patterns, and ready to learn. This will yield early successes, strategies for dealing with inevitable problems, and a cadre of teachers who can become staff developers as the process expands" (Tomlinson, 1999, p. 110).

By the end of this action learning project, these teachers spontaneously began to plan and organise extensions of their co-teaching into the final term of the Australian teaching year and into the next teaching year. Some teachers were actively negotiating with other teachers and with school administration to run a whole school trial of co-teaching. Other teachers were requesting to become involved and to have SEU-supported students in their classrooms so that they could obtain perceived benefits. Although teacher transfers ended one school's involvement with the project, another two schools requested the opportunity to enter a new cycle of action learning for whole-school model of co-teaching.

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