Pergamon

PII: S0742-051X(98)00021-3

"OH WHAT A DIFFERENCE A TEAM MAKES": WHY TEAM TEACHING MAKES A DIFFERENCE

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Abstract—Literature supports the value of team teaching in promoting student learning in higher education. Indeed, data from a study of our team teaching confirm that support. However, definitions of team teaching in the literature are based on a cacophony of voices arising from a variety of pedagogical contexts. Thus, disparate definitions of team teaching are not helpful in explaining why team teaching is so effective in promoting student learning. We provide a solution to this conflict between definitions and praise of effectiveness by noting that the definitions of team teaching are wrong headed because they appeal to logistics, not pedagogical theory, and by providing a theoretical basis that explains why team teaching can be effective given the bewildering array of circumstances under which it is practiced. We also raise issues about team teaching to propose a thorough study of team teaching. © 1998 Elsevier Science Ltd. All rights reserved.

Is team teaching effective in helping students learn? If, as Pugach, Johnson, and Lilly (1995) have suggested, "improving teaching for all students is the foundation for the decision to team teach" (p. 179), then determining the effectiveness of team teaching is critical. Indeed, Ishler's assertion that "team teaching is the most appropriate mode of delivery of the liberal education courses" (1987, p. 15) assumes an affirmative answer to the question about the effectiveness of team teaching. In general, the literature on team teaching in higher education offers a positive appraisal of team teaching. That appraisal, however, is based on various definitions of team teaching arising out of diverse classroom contexts and teaching methods. In addition, scant empirical evidence has been published to provide data about team teaching. As Austin and Baldwin (1991) say, "most of the literature concerning faculty collaboration in teaching at the postsecondary level is descriptive, often consisting of the reports and reflections of faculty who have participated in such arrangements" (p. 35).

Believing in the value of empirical research to help answer questions about the effectiveness of team teaching, we—one a faculty member in the College of Education, Department of Instruction and Curriculum Leadership, and the other a faculty member in the College of Arts and Sciences, Department of English—studied our team teaching to explain, at least in part, why it is effective. We conducted our study with the knowledge that literature praised the value of team teaching. We also had team taught with each other for several years, and that experience as team teachers made us sympathetic with the generally positive assessment of team teaching in the literature. However, we did not have empirical data to help explain why our team teaching experience had been so positive for us and our students, so we collected data to systematically study our team teaching. When we initially analyzed our data and submitted it for publication, reviewers asked penetrating questions about our definition of team teaching, questions that prompted us to reanalyze our data and reconceptualize our understanding of team teaching. In revising this article in light of more critical thinking about team teaching, we came to see that the various definitions of team teaching helped obscure the reasons why team teaching is

effective, and our attempt to define team teaching was no better than those we criticized.

While the data we present in this article confirm literature that provides descriptive evidence of the effectiveness of team teaching, our primary contribution to the discussion of team teaching is grounding team teaching in pedagogical theory that explains why team teaching is given such acclaim and why the disparate definitions of team teaching in the literature are wrong headed. To proceed, then, we show the problem of defining team teaching, touch upon the benefits of team teaching, discuss the data from our study, ground our findings and the literature on team teaching in pedagogical theory, and suggest possible topics for further research on team teaching.

A Cacophony of Voices

The disparate definitions of team teaching are a cacophony of voices. These voices clash with each other because they attempt to define by focusing on the logistics of team teaching. For instance, Gurman (1989) defines team teaching as "an approach in which two or more persons are assigned to the same students at one time for instructional purposes" (p. 275). Hatcher, Hinton, and Swartz (1996), however, define team teaching as "two or more instructors collaborating over the design and/or implementation and evaluation of the same course or courses" (p. 367). Confusion about how to define team teaching grows when authors make specific assertions such as, "grading papers or leaving the room while a team member is teaching violates the intent of teaming in the first place" (Pugach et al., 1995, p. 186) or team teaching occurs when "two or more teachers accept responsibility for the same group of students" (Ennis, 1986).

The cacophony of voices also can be traced to diverse methods of team teaching, including a diversity of educational settings—community colleges (Ashton, 1983; Wishner, 1991), and university undergraduate (Cromwell & Dunlap, 1995; Nead, 1995) and graduate classes (Crossman & Behrens, 1992; Hatcher et al., 1996). Even team teaching in a particular educational setting such as the university can be quite varied. The following examples demonstrate some of the different content areas and purposes that are described in the literature: interdisciplinary general education courses (Colarulli & McDaniel, 1990), teacher preparation—preservice—courses (Cole, 1995; Cromwell & Dunlap, 1995; Fauske, 1993), a Greek civilization course (Cyrino, 1995), English for economics, an economics course in which Spanish-speaking students were also taught English (De Escorcia, 1984), courses for nonnative speakers in content areas (Dudley-Evans, 1981, 1984), library courses (Jurena & Daniels, 1997; LaGuardia, Griego, Hopper, Melendez, & Oka, 1993; Morganti & Buckalew, 1991; Tims, 1988; Whyte, 1995), technical writing courses (Barnum & Aft, 1986; Colby & Rice, 1971; Winkler, 1977), foreign language courses (Boyd-Bowmen, Flickinger, Papalia, & Rasmussen, 1973; Magnan, 1987), journalism courses (Clark, 1977), and nursing courses (Floyd, 1975; Garner & Thillen, 1977; Hogstel & Ackley, 1979; Murdock, 1978).

Indeed, descriptions of team teaching include a group of faculty members who form an interdisciplinary team to provide guest lectures for "'host courses' for one week each semester" (Faculty, 1990, p. 4), teams consisting of "three or four faculty members working with a student cohort of up to 25 members" (Benner & Cagle, 1987, p. 28), the teaming of public school teachers with university faculty members (Fager, Andrews, Shepherd, & Quinn, 1993) or undergraduates with professors (Held & Rosenberg, 1983) or graduate assistants with professors (Simpson, 1987), and individual lecturers who provide a block of instruction for a class and then move on to teach another class (Morlock, Gaeddret, McCormick, Merrens, Shaffer, & Zandi, 1988). Such diversity mitigates against a formal definition of team teaching, but as Austin and Baldwin (1991) note:

> While an extensive literature systematically evaluating and assessing the outcomes of faculty collaboration in teaching does not exist, the various articles and reports describing approaches and examples of team teaching taken together provide some evidence of the strengths and drawbacks of team teaching. (p. 41)

Anderson (1991) offered a similar conclusion: "... in well-controlled studies both teachers and pupils have been shown to prosper" (p. 47). Note that the cacophony of voices blend with each other when they discuss the benefits or strengths of team teaching. Scholars do not have to agree

how to define team teaching to agree that it does help students learn, but the disparity between definition and positive assessment seems odd. We address this oddity later. Next, however, we show that much of the literature does affirm the utility of team teaching in helping students learn.

The Effectiveness of Team Teaching in Promoting Student Learning

How does team teaching help students learn? According to the literature, team teaching encourages multiple perspectives, promotes dialogue/increased participation, and improves evaluation/feedback. What is quite amazing about all these benefits is that they crop up in disparate teaching situations in which various teaching strategies are employed.

Multiple Perspectives

An often cited benefit of team teaching is that students gain multiple perspectives because two teachers offer different viewpoints. For instance, Crossman and Behrens (1992) said that in their team teaching, they regularly expressed differing points of view. They affirmed that "students can only benefit from an articulate expression of several points of view" (p. 7). Andersen (1991) noted that team teaching is important in "creating a climate in which ideas can be developed and freely exchanged" (p. 10), and Hale and Klaschus (1992) stressed that:

> ... the dynamic of the interchange of disparate opinions invigorates both the team and the class. At best it establishes a pattern for the students to assert their own views and to strive to support those views as solidly as possible. At worst it makes students uneasy with simple explanations. (p. 302)

In addition, Fu and Chase (1991) confirmed the value of multiple perspectives from two teachers, as did Garner and Thillen (1997) when they said that "students are more likely to be exposed to different philosophies, experiences, values and sources of information" (p. 28) in a team teaching situation. Other outcomes of multiple perspectives include students' ability "... to see that it was possible to disagree about fundamental issues and still respect the integrity of your opponent without being hostile. They also saw that it was possible to try different ideas

and have them legitimately examined" (Spector, 1992, pp. 335–336). Bowen and Nantz (1992) also talked about the difference between team-teacher disagreement and alternative perspectives:

> We seldom disagreed; outright disagreement between teachers in a classroom tends to confuse your students, leaving them frustrated and impatient to know what is "right." But we frequently raised dissimilar issues in discussion. By displaying these alternative perspectives, we hoped that the students would see their own views as valid and worthy of discussion. (p. 30)

When team teachers demonstrate that disparate viewpoints are valuable, the teachers can become model learners (Colarulli & McDaniel, 1990; Bowen & Nantz, 1992) and models of mutual respect (Knights & Sampson, 1992; Quinn, 1984). Such modeling by teachers can help students learn how to engage in learning effectively.

Dialogue/Increased Participation

Team teaching also can promote dialogue leading to increased student participation (Hertzog & Lieble, 1994). Increased student participation naturally follows when teachers encourage the expression of multiple perspectives by modeling learning and mutual respect. As Colby and Rice (1971) noted, when team teachers model dialogue between themselves, they elicit "easy involvement from students" (p. 9-9). Part of the reason why dialogue can foster increased student participation may be due to what Rinn and Weir (1984) said is one outcome of effective team teaching: "intellectual excitement" (p. 9). Thus, professors' "enthusiasm reveals them as the best students in the class" (p. 5), and the "other" students sense a dynamic in the classroom that invites them to join in the intellectual excitement. Indeed, "the interactive nature of team teaching may be a potential source of intellectual stimulation and cognitive development for learners as well as faculty" (Hatcher et al., 1996, p. 375).

Nead (1995) seems to note the value of intellectual excitement when he talks about the affective component of learning in the team-taught classroom. He reports that "team-taught students perceive having been part of something important. Learning 'for learning's sake' is

a more identifiable outcome for team-taught students" (p. 35). Increased student participation, by the way, includes increased inter-group communication ability (Ramsey & Silvia, 1993). Little wonder, then, that Morganti and Buckalew (1991) say of the students in their team-taught course that they "seemed less inhibited to contribute to class discussions than we had observed previously in traditional classroom situations" (p. 196).

Evaluation/Feedback

A third strength of team teaching is that it can improve evaluation/feedback of students' performance. One type of evaluation/feedback the literature on team teaching discusses is teachers' responses to students' written work. Thus, Andersen (1991) said, "with two knowledgeable readers [of students' papers], feedback can be doubled and alternative points of view can be discussed" (p. 10). Winkler (1977) confirms the value of two teachers grading the same student paper, but takes a different view of that value than Andersen does. In defending the value of team grading, Winkler pointed to two professors with different areas of expertise and noted that each professor can grade a student's paper for different things: "the technical faculty member will grade the student's content while the technical communication instructor concentrates on rhetorical and design principles, formatting, effective use of visuals, informative abstracting, and audience analysis" (p. 109).

Team grading also can promote fairness, according to Morganti and Buckalew (1991):

> Each of us graded and commented on each assignment separately, without allowing the other to see the grades or comments that we had given, and then we compared. In general, our comments were similar, and the grades were always very close. This gave us more confidence in our grading, and the students, who knew of our procedures, seemed confident of the fairness of their grades. (p. 197)

Certainly, fairness in grading does not guarantee future improvement, but fairness in grading as described by Morganti and Buckalew can promote an affective classroom environment in which students see the value of two teachers' professional judgments when they converge. In fact, students might very well use those judgments to improve their performance. Reynolds (1985) suggests that such is the case when he noted that double grading "is more effective and reliable" than solo grading in "giving students helpful, understandable, and encouraging comments" (p. 14) on their papers.

Teacher judgment, however, need not result in a grade. As Flanagan and Ralston (1983) noted, in reporting one benefit of team teaching, "a more accurate evaluation of what students were learning and their attitudes toward course material was possible because of the observer [one of the team teachers] watching students' reactions and listening to their comments" (p. 117). Supposedly, teacher evaluation of students' learning and attitudes is translated into pedagogical strategies that help students learn effectively. Such teacher feedback is particularly important for high-risk students, as Wishner (1991) notes:

> Underprepared students, in particular, can benefit from two concerned teachers whose teamwork often brings problems to light faster than they might surface in an ordinary class and whose two heads are often better than one for brainstorming solutions to problems. (p. 4)

In short, team teaching offers students the opportunity for multi-perspective feedback based on teacher collaboration, whether that collaboration focuses on grading papers, observing students' learning, or providing feedback to solve problems.

The literature we reviewed presents an interesting conundrum. On the one hand, the voices that define team teaching offer listeners a jarring noise, voice grating against voice. On the other hand, the same voices blend when singing about the virtue of team teaching as an effective way to help students learn. To help explain the cacophony and confirm the harmony, we present data from a study of our team teaching and discuss that data in light of theoretical considerations.

Method of Team Teaching

For one five-week summer session we team taught the Memphis Urban Writing Institute. We had team taught the Institute for two summers previously, and both of us also had team taught with other colleagues in our respective colleges. We worked together to prepare for the

class, and we were in the classroom at the same time to teach the students.

The Memphis Urban Writing Institute is a six-hour elective graduate class designed to help K-12 teachers learn how to (1) become more confident writers, (2) improve writing instruction with their students, (3) integrate technology into the writing curriculum, and (4) conduct writing inservice presentations. On Monday through Thursday, the teachers met in class with us from 9:00 a.m. to noon, and in the afternoon they met in a computer lab from 1:00 to 3:00 p.m. The morning session was conducted in a reading-writing format with teachers sharing different types of journal writing, presenting individual workshops, working in collaborative writing groups, sharing results from research projects, and developing portfolios. During the computer lab time, teachers worked on individual assignments and learned new ways of integrating technology into the K-12 writing curriculum.

During this study, five elementary, three middle, and four high school teachers participated in the Institute. In addition, two par-ticipant observers were in the class. Leon Heaton, a Graduate Assistant, was a participant observer during each morning session and assisted with research and clerical tasks. Carole Barker, a kindergarten teacher and an alumna of the Institute, was a participant observer during the morning sessions and taught the afternoon computer labs. We asked the participant observers for permission to use their names in this article because we are committed "to bringing our subjects into the research as active partici-pants" (Acker, Barry, & Esseveld, 1991, p. 150). Both agreed to having their names included.

Data Collection

We collected data in a variety of ways during the Institute. First, we provided the teachers with a periodic writing prompt that gave us feedback about how our team teaching influenced their learning. We started the prompts during the second week of the Institute and furnished the last prompt the first day of the last week (see Figure 1). Teachers responded to the prompts during the afternoon computer lab

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Writing Prompts

Day 6.   What do you think are the strengths of team teaching?
Day 7.   What do you think are the weaknesses of team teaching?
Day 8.   At this point, how has Becky and Bruce's team teaching affected your learning?
Day 9.   Please talk about your perceptions of Becky's role in the team-teaching enterprise in the Institute.
Day 10.   Please talk about your perceptions of Bruce's role in the team-teaching enterprise in the Institute.
Day 11.   What could Becky and Bruce do to improve their team teaching?
Day 12.   At this point, how has Becky and Bruce's team teaching affected your learning?
Day 13.   How has the team teaching in the Institute influenced your thinking about your own teaching?
Day 14.   Has the gender of the team teachers influenced your participation/learning in the Institute? Please explain.
Day 15.   How different would the Institute have been if only either Bruce or Becky would have directed it?
Day 16.   At this point, how has Becky and Bruce's team teaching affected your learning?
Day 17.   What do you think are the strengths and weaknesses of team teaching?

Figure 1. Writing Prompts

time. We assured them that we would not have access to their responses until after their grades had been turned in. Therefore, we asked one of the teachers to collect and keep all responses until the end of the Institute.

Another data source included three types of journals. One source was our own journals. After each class, we wrote a journal entry to one another that focused on our team teaching. Although we wrote about various issues related to the class, in each entry we specifically responded to the question, "What impact did our team teaching have on the students' learning?" These journal entries were generally one page long and were exchanged via e-mail. The second journal source was written by the participant observers in the class. In addition to field notes, both Leon and Carole kept daily journals that responded to the question, "What is your reaction to today's class, and to Bruce and Becky's team teaching?" These data were given to us at the end of the Institute.

The third journal data source was written by teachers in what we called a traveling journal. After class, one teacher wrote a journal entry about what happened during that day in the Institute. He or she was free to choose the length, format, and focus of the entry. The next day's Institute started by the teacher reading the entry to the class and then passing the journal to another teacher who would write a journal entry about that day. This provided a record of what occurred during each class that was significant from the teachers' perspective.

Additional data sources included 'exit slips,' portfolios, and self-evaluations written by the teachers. At the end of each morning session, the teachers wrote a message to us about their reactions, questions, and reflections to the class. We called these messages exit slips. The teachers also wrote a self-evaluation for each required assignment, and a final self-assessment at the end of the Institute. In addition, the teachers completed a portfolio at the end of the Institute that emphasized what they had learned.

Data Analysis

We analyzed the data at the completion of the study. We began analysis by independently reading the responses to the prompts, journals, exit slips, and self-evaluations in their entirety to gain insights about our team teaching (Mishler, 1986). We then did a second reading, and, using open-coding, identified categories and themes for each data set (Strauss & Corbin, 1990). An additional outside reader was employed to review the data set and reach agreement with the categories and themes we had identified. After engaging in these multiple levels of analyses, four salient variables of team teaching emerged.

Findings

We identified four variables of team teaching that influenced students' learning in the Institute: (1) team teachers' compatibility, (2) team teachers' expertise, (3) team teachers' gender, and (4) classroom environment. While the variables overlap, we use evidence from more than one data source to report them as findings.

Team Teachers' Compatibility

Team teachers' compatibility can promote student learning. Compatible team teachers work together harmoniously by embracing a similar philosophy and vision for the class. All data sources in this study indicated we were compatible and complemented one another. For instance, Becky wrote in her journal:

> I have grown comfortable with you. I know that I can trust you. You are always prepared. You aren't eager for the spotlight, but you will assume a leadership role with just a look from me. I guess we can read one another and are eager to help one another out.

Bruce made a link in his journal between compatible team teachers and creating a classroom environment conducive to learning:

> I'll have to think about this, but I really don't see any liabilities to team teaching, if both the teachers are clicking together. If they aren't clicking, then I think the effort could be miserable for teachers and students. Even the problem of time is not ultimately a problem because the teachers offer each other a support system that allows for less stress in the classroom, so the classroom can be more relaxed.

Compatibility does not require conformity regarding teaching styles. Indeed, all data sources confirmed that we had compatible but different teaching styles. For instance, Leon wrote in his journal, "I see two distinct teaching styles here. On the one hand, Bruce teaches more by the traditional lecture, but livens it up with humor

and jesting. Becky, on the other hand, teaches by nurturing, caring, encouraging, and class discussion." Teachers agreed with these differences. For example, on a writing prompt, 50% of teachers described Bruce as the more passive partner who was the "strong, silent type," and who "doesn't go to blows over things." Becky, on the other hand, was described as more "verbal" and "outspoken." It's interesting to note that these differences were viewed as assets that contributed to student interest, motivation, and learning as illustrated by this teacher's comment: "Bruce's humorous style of getting points across has motivated much self-reflection about my own writing, and Becky has been more of a facilitator and has given us much time for discussion and thinking." Thus, as expressed by one teacher, differences in our teaching styles were compatible and necessary:

> Becky does it one way. Bruce another. It could be frustrating with one way. I think if Bruce had directed it, there would have been less collaboration and negotiation in the class. If Becky only had directed it, I think we would have had some times of frustration when we wanted very specific kinds of information without having to negotiate with it. I think they approach academic endeavors a little differently, and with either of them missing, we would have missed out.

Even though teachers thought we had different teaching styles, 50% of them noted that we shared the same teaching philosophy and vision about what needed to be accomplished in the Institute. For example, on a writing prompt, one teacher wrote:

> I feel that the strengths of team teaching are embodied in the teaming up of two people who are compatible and who share the same goals and objectives for the course they are teaming up on.

According to 83% of teachers, it is important for students to see agreement between two team teachers, so, as one teacher stated, "there is no risk of contradictory signals." However, this does not mean that team teachers cannot disagree. In fact, students can learn from these disagreements. For example, during the Institute we disagreed about our policies of turning in class assignments when we solo teach. In his journal, Leon captured the flavor of the teachers' reactions to this disagreement:

> Interesting discussion arose today about Bruce and Becky's differing policies about late papers. Becky

gives no penalties for late papers at all, and Bruce does not accept late papers for any reason. This difference in policies created tension in the class. Most students didn't like Bruce's policy at all, but some did. A large discussion ensued about which policy was better. This discussion seemed beneficial to most students, because most seemed not to have given much thought to a late paper policy.... If it were not for the team teaching, this issue probably would not have been addressed. In the class I had with Bruce which he solo taught, Bruce announced his policy to the class and no discussion or debate occurred about the policy. Because the students in the Institute could see that the two instructors disagreed, this allowed them to feel free about discussing the issue. The team teaching made the class more democratic.

Later, Leon wrote a follow-up entry about the late paper policy:

> Sister Paul Marie mentions in her traveling journal that Bruce's no-late paper policy and Becky's no-penalty late paper policy serve as a check and balance system for the team teaching. The check and balance that Sister refers to seems to reinforce the notion of a more democratic classroom that I mentioned in the previous journal entry, as checks and balances are only necessary in a democratic society to prevent dictatorships.

In sum, this finding suggests that while it is acceptable, and perhaps even desirable for team teachers to have different teaching styles, it is imperative for them to be compatible, committed, and clear about the vision of the class. Otherwise, students receive mixed messages and become confused.

Team Teachers' Expertise

We also found that team teachers' expertise can have a positive effect on student learning, because students gain multiple perspectives on issues and find the diverse instruction interesting and engaging. All of our data sources confirm this finding.

Students gain multiple perspectives on issues in a team-teaching classroom because teachers naturally have different expertise and different background experiences. When teachers are from different disciplines, these differences are more pronounced, and thus have a powerful effect on student learning. Leon wrote about this on several occasions in his journal, including the following journal entry:

> Becky and Bruce seem to have decided clear roles for themselves partly according to where their expertise

is located. For instance, when a question or discussion about teaching arises, Becky always addresses the issue. But when a question or discussion arises about writing or editing, Bruce takes over the discussion. Students also seem to have picked up on these different roles.

On a writing prompt, nine of twelve teachers confirmed that team teachers' expertise influenced their learning in a positive way. None reported negative outcomes. Representative comments from teachers follow:

- During team teaching, the same idea can be related by two or more instructors from differing points of focus based upon each instructor's individual experiences. Such teaching method affords the student the opportunity to find the experience with which she or he can relate for greater understanding.
- The learning is much more effective and registers more readily with team teaching. With one person teaching, you must process the information from that person's train of thought and point of reference to your own. This processing sometimes takes an extended period and even months or years. However, with team teaching, the train of thought or point of reference presented by one of the parties will usually register almost immediately.
- When we haven't understood one's explanation, the other instructor has tried to clarify it for us.
- Being able to see more than one way to approach a problem or issue fosters self-reflection and the ability to think critically.
- The comparisons Bruce and Becky make using different experiences provide us with a valuable source of insight.
- Each of their strengths has come through and allowed me to learn a great deal more than if they had tried to teach an area not in their area of expertise.

According to all data sources, two teachers' expertise also can result in interesting and engaging instruction. For instance, on writing prompts, 75% of teachers made comments such as the following:

- If only Becky or Bruce had led the Institute I think that we would have missed out on much fun.

- Lessons seem to be stronger when there is another teacher in the room. Let's face it, you are being watched by a peer.
- Oh, what a difference a team makes! It would take very little imagination on my part to see how different the Institute would have been if only Becky or Bruce would have directed it. The Institute would have been rewarding to the students; however, much would have been lost.

In sum, this finding suggests that superior instruction can result from team teaching. Student learning is enhanced by instructors' multiple perspectives and sharing of varied teaching experiences. The changing pace of instruction helps create an interesting and engaging classroom.

Gender

Another variable in team teaching that may affect student learning is gender. For instance, in responding to a writing prompt, 50% of teachers believed gender influenced their learning while 50% did not. Those who believed that gender influenced their learning used common gender-role stereotypes to describe us: Bruce was "technical" and an "expert"; Becky was a "facilitator" and a "friend." The following comments help clarify their perceptions:

- I am certain that if both teachers were either only male or only female, I would not have been as receptive to the information disseminated.
- It seems that the female will give a different perspective on the same subject than the male would give.

The remaining 50% of teachers claimed it was personal traits, not gender, that influenced their learning. For example, one teacher wrote, "Having both a male and a female instructor does provide differing personalities, but that may be just the difference between Becky & Bruce, and not the difference between gender." Of the 50% of teachers who said gender did not influence their learning, 82% did, nevertheless, make positive statements about having each gender represented in the class:

- Different genders create a more interesting approach to a learning situation, because they just naturally complement each other.

- Students may feel more comfortable in discussion and class participation with "representation" from both genders.

It is important to note that our journals were the only additional data source that addressed gender. We both wrote about the perplexities of gender, as illustrated in Bruce's entry:

> I think the question about gender and students' willingness to approach a teacher is fairly complex. I suspect that in the Institute the students feel more comfortable approaching you because you are in education and they are in education....But there could be other variables that have an impact on whether a participant is drawn to one gender or the other: the participant's personality as it fits with the personality of the particular teacher, the participant's family background, previous relationships, and so on. Communication style is another issue.

In sum, this finding suggests that students were mixed in their opinion about gender affecting their learning in a team-teaching situation. They did agree, however, that having each gender represented in the classroom was a positive experience. Students might relate to one teacher more than the other, and students' needs can be more readily met when there are two teachers.

Classroom Environment

According to 83% of teachers, team teaching helps create a collaborative classroom environment and thus promotes student learning. For instance, one teacher wrote: "The team approach opens the class to a collaborative style of teaching and learning that otherwise would have been difficult to establish so quickly and easily." Another teacher commented, "The Writing Institute gave new meaning to collaboration: We became a team." Additionally, in his final self-assessment of the Institute, a teacher made connections between collaboration and student learning:

> I am convinced that a solo teacher could not possibly have handled so much material and diverse student groups in such a rewarding manner. Just as students benefit from cooperative learning environments through the sharing of experiences and social skills, so too do team teachers, with the ultimate benefit going to the students in terms of enhanced learning.

The collaborative environment in the Institute was a reflection of our collaborative approach to planning and teaching the Institute. Carole talked about this in her journal: "Each morning Becky and Bruce gather upstairs in Becky's office to discuss the plans for the day. Ideas are bounced around the room and each professor shares the commanding role." Indeed, all participants viewed us as co-facilitators who had equal weight. For instance, one teacher wrote: "All the decisions made have been collaboratively." Another teacher, in commenting on the way our team teaching helped diffuse authority, noted in a writing prompt that "team teaching opens the style of the classroom to methods other than the one-teacher-in-control method."

According to teachers, the collaborative model we used in conducting the Institute naturally became part of the working relationships among teachers in the Institute. Indeed, our purpose in sharing power and control with teachers was to help them learn. Thus, according to 67% of teachers, the team teaching in the Institute created a classroom environment in which students were more likely to be actively engaged, encouraged to voice their opinions, and willing to take risks with their learning:

- Each student always being actively involved in the class has proved to be the true intention of Becky and Bruce's team teaching enterprise.
- I love how this class is decentralized and everyone participates. It almost feels like Bruce and Becky are part of the class, though I know they are working, working, working behind the scenes.
- I have learned that it's OK not to always concur.
- The climate would have not been as flexible because fewer opinions would have been expressed through the teaching process.
- The personality of the class would not have been as humorous if only one instructor could have been picked on.

A collaborative classroom model has added benefits if students are also teachers—as they were in the Institute—because they can make many connections to their future classrooms. For instance, in their portfolios, 58% of teachers discussed their own students, as these representative quotations show:

- Working together has been a wonderful experience for me. I have learned that I need to allow my students to feel cooperation and

concern from others as I have experienced in this Institute.

- I know that I will never be the same Ms. X and hope these changes will impact my students' growth for the better.

In sum, this finding suggests that team teaching is one way to facilitate the creation of a collaborative classroom environment. Team teaching provides a collaborative model that not only lets students see how teachers can collaborate successfully, but also invites students to become part of the classroom collaborative. As one student wrote, "While it may be easier to sing by myself, the work involved in rehearsing with someone else pays off when I'm part of the solid harmony."

Discussion

We were surprised that we did not have any negative results in our data to report. Frankly, as researchers, this concerns us. Perhaps we did not have negative responses to any of our research instruments because the Institute was an elective, and the teachers who attended the Institute wanted to be in the class. Perhaps we happened to have one of those dream classes in which everything seems to work perfectly. Perhaps our previous experience as team teachers—with other professors and as co-teachers for the Institute during previous summers—prepared us to work well together during the Institute from which we collected data about our team teaching. Any or all of these perhapses may have influenced our data. Yet our findings are congruent with the literature. To gain insights into persistent positive responses to team teaching, we return to the promise we made at the outset of this article and explain "why team teaching is given such acclaim and why the disparate definitions of team teaching in the literature are wrong headed."

Why Definitions of Team Teaching are Wrong Headed

Definitions of team teaching based on the number of people in a team, their functions in the team, or other circumstances of the team teaching enterprise are wrong headed because the circumstances of team teaching alone do not provide an adequate basis for defining team teaching. Instead, any definition of team teaching must be grounded in the benefits—not the configurations—of team teaching. Further, the benefits must be grounded in pedagogical theory. However, so many definitions of team teaching vie with each other in the literature because those who describe their team teaching experiences focus on the logistics of team teaching instead of theoretical assumptions about the nature of team teaching.

Constructivist Assumptions as the Theoretical Foundation for Team Teaching

We suggest that the singular praise of team teaching in the midst of seemingly cacophonous definitions can be traced to a unified, but unacknowledged, theory of learning: constructivism. Because much of the published work on team teaching is descriptive, the literature is a retrospective look at pedagogical experiences without the benefit of a theoretical substructure. In fact, we hasten to add, our own team teaching experience did not begin with a conscious application of constructivist principles to our classroom. While we held to many tenets of constructivism before we began team teaching, we see in retrospect that the great heterogeneity of the various circumstances on which descriptive reports of team teaching are based becomes less perplexing when those reports are interpreted as affirmations of constructivist principles.

While this is not the place to provide a full-blown examination of constructivism, we note that two essential elements of constructivism are collaboration and, concomitantly, multiple perspectives. Thus, Brooks and Brooks (1993) note that learning from a constructivist perspective includes "concrete experience, collaborative discourse, and reflection" (p. vii). They also list five principles of constructivist pedagogy, including "seeking and valuing students' points of view" (p. viii). In other words, the constructivist classroom is based on a team effort in which the teachers model collaborative learning by treating students as fellow learners. As Fosnot (1996) notes, one result of a constructivist model is that instructors assume a facilitator's role and students assume more responsibility for their learning. Indeed, student learning is enhanced when students actively participate in their learning

and have opportunities to explore their own ideas through discourse, debate, and inquiry (Anderson & Piazza, 1996; Bufkin & Bryde, 1996; Davydov, 1995; Duckworth, 1987; Gruender, 1996; Kroll & Laboskey, 1996). Another inescapable outcome of the constructivist classroom is the dispersion of authority. This does not mean that teachers abdicate authority. They certainly act with authority in a constructivist classroom, but their authority is not limited to that of the content expert, but includes that of the expert learner. Thus, the teacher is no longer the sole authority in the classroom, and students are not tabula rasa on which the teacher must write the truth. Teachers who practice constructivist principles facilitate learning by demonstrating how to learn.

Team Teachers as Models of Professional Disagreement. We argue that when read from a constructivist paradigm, the literature on team teaching is no more than an affirmation of constructivist principles. For instance, in terms of the value of multiple perspectives in the team teaching classroom, our study mirrors the results of virtually all the literature on team teaching: students believe that multiple perspectives help them learn. Why? Because collaboration is the essence of learning, and collaboration requires, from a constructivist perspective, multiple perspectives. Thus, a central tenet of effective team teaching, both from a constructivist perspective and from the literature on team teaching, is that team teachers become models of professional disagreement. By *professional*, we mean both expert and collegial.

In fact, we think our data—and the data reported in the literature about team teaching in higher education—only makes sense when interpreted in light of that constructivist principle. For instance, our claim that we were compatible, yet taught using different teaching styles seems contradictory until the seeming contradiction is explained on the basis of the necessity of diversity in learning and teaching, including diversity of professional opinions. We identify with Pitfield and Rees (1972) when they said, "as we progressed we settled more easily into complementary roles so that there was more contrast in our delivery styles which improved the sessions a great deal. We were not afraid to disagree, in a cordial manner" (p. 100). Diversity,

however, cannot be based on tolerance, if diversity is to be a powerful learning tool in the classroom. Diversity must be based on mutual respect. We suggest that mutual respect presumes a constructivist understanding of learning and teaching as collaborative activities in which teachers and learners alternate in their roles as teachers and learners until they see those roles as interchangeable.

Team Teachers as Models of Mutual Respect. The literature on team teaching says much about the need for mutual respect in the team teaching enterprise. For example, Heath, Carlson, and Kurtz (1987) noted, "for a team to function well, mutual respect and equal participation is necessary" (p. 80). Thus, the success of a team-taught course "is dependent upon the success of the [teachers'] partnership" (Jurena & Daniels, 1997, p. 16). Knights and Sampson (1992), in calling team teachers *partners*, said, "If partners come from different class or ethnic backgrounds it can also provide a model of mutual respect across gender, class or racial barriers" (p. 306). In essence, when team teachers present "themselves as models of discussion and disagreement" they communicate "a model of civilized behavior, no matter how serious the disagreements may be" (Quinn, 1984, npn). This model of civilized disagreement has an impact on student learning, according to Rinn and Weir (1984), who reported that students in a team-taught class said "they have learned more because they are exposed to three professors wrestling with one topic" (p. 9). Spector (1992) says essentially the same thing:

> We challenged each other's views and positions, and encouraged the students to join in the conversation. What struck us during that meeting was not only how strikingly different our views are but also how neither of us felt that he was being attacked personally. Our discussion was about ideas, concepts and historical facts and interpretations, all of which are deeply rooted in both of our lives. Yet, the students were able to see that it was possible to disagree about fundamental issues and still respect the integrity of your opponent without being hostile. They also saw that it was possible to try different ideas and have them legitimately examined. (pp. 335–336)

Thus, Wiley and Robinson (1987) can say, "it is good for students to see the intellectual exchange of ideas between and among their instructors" (p. 13).

The literature, however, is not bereft of examples in which teacher disagreement either in offering conflicting advice to students or in offering conflicting feedback seems to have been a problem for students (Bennin & Lewandowski, 1991; Garner & Thillen, 1977; Gurman, 1989; Hogstel & Ackley, 1979). We suggest that when teacher-teacher conflicts are harmful to student learning, the problem is with the coordination in the team teachers, not with the issue of conflict per se. As Simpson (1987) affirmed, "students are not unduly confused by having two professional opinions of their work" (p. 12), but we hasten to add that such is the case only when the two professional opinions issue from a constructivist view of teaching and learning.

In answering the question about why students learn effectively in a team teaching endeavor, we rest our case on the centrality of team teachers employing constructivist principles in their team teaching relationship. The focus of team teaching, unsurprisingly, is not students, but teamed teachers. What they do in modeling learning determines the level of success their students will have as learners. As Easterby-Smith and Nils-Goran (1984) noted in explicating five models of team teaching, "clearly, some variants of team teaching leave very little opportunity for student centredness; others leave more" (p. 235). We simply add that the student-centered models of team teaching in the literature are based on an unacknowledged constructivist understanding of the necessity of professional disagreement among team teachers to promote student learning. In other words, to the extent that the teamed teachers model learning according to constructivist principles to that extent student learning is promoted. Our data and the literature confirm our assertion.

Suggestions for Further Research

The data from our study raise questions not only about teachers' exclusively positive responses but also about other issues we will now outline. These issues constitute a research agenda that we believe and hope will form the basis for future research on team teaching.

First, our research highlighted the issue of gender and its impact on learning in a team-teaching situation. The literature we reviewed was virtually silent on this issue. A study of gender in team teaching should include an investigation of the relationship between team teachers of the same and different genders. In addition, researchers should investigate the relationship between a teacher's gender and students' gender in team teaching and effects on learning.

Second, the issue of how team teachers are selected needs to be investigated. Most of the literature we reviewed on team teaching stated that team teachers should not be assigned to each other but should be active in selecting each other. Stehlik (1995), for instance, said, "team teaching will not necessarily work when partners have not selected each other but have been placed together for administrative convenience to suit a timetable" (p. 106). The assumption here is that teachers have better insight into the selection process than administrators would have. The evidence for this assumption has not yet been provided. Certainly, teacher selection of a team-teaching partner appears to be a common-sense notion, but to date no clear evidence or criteria for selection is apparent, making the basis for selection instinctual. What proof do we have that a teacher, just by virtue of being a teacher, has the instincts necessary to make a good selection of a teaching partner, especially when the literature gives examples of team-teaching situations in which teachers did not work well together? If we can find teachers who have the instinct, we need to find out whether we can analyze and describe it so that teachers with less instinct will have access to a rubric for selecting a partner. Perhaps, teacher selection could be based on some capability requirement or personality matching that could be accomplished by certain types of testing (e.g., Meyers, Briggs, DISC Personality Profiles). In considering how to match teachers so that they can be effective team teachers, we need to raise the gender issue again. Our data suggest that students approved of a teaching team consisting of one female and one male. Do the best teaching teams include both genders? The answer to that question certainly should be part of the research agenda for determining what constitutes effective team teaching.

Third, we need to calculate the costs of team teaching. Is team teaching economically feasible? Under what conditions is it economically

feasible? The costs are not merely the cost of having two teachers in the same classroom (given one definition of team teaching). The costs include increased preparation time and the development of administrative mechanisms for constructing, evaluating, and rewarding teaching teams. As McCadden said, "To be successfully implemented, team teaching does need sophisticated and strong administrative support that takes into account the complexity of the task being undertaken" (npn). If the field of education continues to experience an economic roller coaster ride, we will need to justify team teaching in economic terms so that it will not be jettisoned during times of underfunding. If we cannot justify team teaching economically, we may need to justify team teaching as an excellent vehicle for professional development (Ware, Gardner & Murphy 1978; Zhang & Keim, 1993). Plotnicov (1985), for instance, noted that team teaching provides "an opportunity for faculty to break out of old pedagogical molds when treating subjects that do not conform readily to the standard curriculum but are personally and deeply moving" (p. 260). We assume that team-teaching experiences which are personally and deeply moving are rewards in themselves, but they may not be sufficient rewards for teachers' time and effort. What exactly constitutes sufficient rewards has yet to be demonstrated.

Fourth, we need to determine how to reward team teaching. For instance, the concern that often occurs when colleagues and administrators try to find a way for how to give appropriate credit to instructors and professors for multiple-authored publications is very likely typical of the debate that could occur when colleagues and administrators attempt to reward teachers engaged in team teaching. What constitutes sufficient credit for each teacher in a team-teaching situation?

Fifth, we need to investigate team teaching via "objective" researchers. Self-reported data, such as the data we report here, has value, but it should be coupled with observations by those who do not have a vested interest in the success of team teaching. While we did ask Carole and Leon to give us their views of our team teaching, we would like to reach for a higher level of "objectivity." For instance, one source of data could be administrators, who presumably would want to determine the most effective teaching methods for their institutions. They could be called upon to make guided observations about team teachers over a period of time, and those observations could become a source of data outside the team teachers themselves. Another possibility is that team teachers from one educational institution could study the team teaching of colleagues at another institution. Perhaps colleagues from various institutions could simultaneously study team teaching at institutions other than their own. Even colleagues from a different department could be enlisted to study the team teaching of colleagues in another department.

Sixth, we need to find out whether a single teacher classroom can be as effective as a team taught classroom when both classrooms use constructivist principles. We suspect that much of the enthusiasm generated by team teaching can be traced to either the knowing or unknowing practice of using collaborative learning principles espoused by a constructivist paradigm. Could, therefore, single-teacher classrooms be as effective as a team-taught classroom if the teachers practiced constructivist principles in teaching students? We think so, in part, because both of us have been involved in writing projects in which a single-teacher classroom operated much like the Institute we team taught. Again, we need research to help us answer questions about the relationship of paradigm variables and team teaching.

Seventh, we need longitudinal studies of team teaching. We report data that rely upon two previous summers of team teaching with each other. What would data have looked like from our first summer of team teaching? Our second summer? How would data from the three summers compare to each other? What impact have other team teaching experiences had on the team teaching experience we report here? Do team teachers continue to teach with each other over a number of years? Do they continue to team teach but with different partners? To be answered, these questions require longitudinal studies.

We have shown that team teaching based on constructivist principles is a valuable pedagogical tool in helping students learn, but we also recognize that further empirical research on team teaching could provide more insight into the value of team teaching and its limitations.

We have outlined a research agenda that, if rigorously conducted, would provide data to help answer the questions we have raised.

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