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SOLIDARITY THROUGH COLLABORATIVE RESEARCH

Stephen M. Ritchie¹ & Donna L. Rigano²

1. Queensland University of Technology
2. James Cook University

Correspondence Address

Associate Professor Stephen M. Ritchie
School of Mathematics, Science & Technology Education
Queensland University of Technology
Victoria Park Road
Kelvin Grove, Q’ld, 4059
Australia
s.ritchie@qut.edu.au

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Solidarity through collaborative research

Abstract

While numerous publications signal the merits of collaborative research, few studies provide interpretive analyses of collaborative-research practices or collaborative relationships. Through this multiple case study design of collaborative-research teams, we attempt to provide such an analysis by focusing on the collaborative-research experiences of seven qualitative researchers from two contrasting research teams in Australia and North America. We highlight how solidarity emerged from successful interactions between interdependent members, and these were both professionally and personally rewarding for individuals and the teams. As well, we identify the opportunities for solidarity afforded to researchers from vertical collaborations (i.e. collaborations involving differential status between team members) that featured evolving and transforming mentoring relationships through the history of the research projects. We propose that solidarity can be stratified within large research teams through sub-units like dyads. Finally, we suggest that collaborating researchers might benefit from reviewing case studies of collaborative relationships, and engaging in mutual interrogation and subsequent individual reflections of their articulated collaborative practices and relationships.

Key words: Collaboration, Research teams, Relationships, Solidarity, Emotional energy

Biographical Note

Steve Ritchie is an Associate Professor in science education in the Faculty of Education at Queensland University of Technology, Australia. He co-authored *Re/Constructing elementary science* (2001, Peter Lang) with Wolff-Michael Roth and Kenneth Tobin, and co-edited *Metaphor and analogy in science education* (2006, Springer) with Peter Aubusson and Allan Harrison. His current research interests include curriculum leadership, children's writing of eco-mysteries, teacher learning, and students as researchers for sustainable development.

Donna Rigano is a researcher in the School of Education at James Cook University where she is also manager of the *Children's Science Writing Project*. Her research interests include thinking in the professions, learning and teaching science, and teacher change and leadership.

Introduction

Far from the traditional image of the lone researcher, numerous qualitative researchers choose to work together or collaborate, as it is commonly referred, in teams. Collaborative-research teams have the potential of addressing complex social problems by bringing together researchers with different expertise and perspectives. They provide a supportive climate that encourages creativity and risk-taking, and distribute work loads to enhance motivation and productivity (Eisenhart & Borko, 1991; Bond & Thompson, 1996; Hafernik, Messerschmitt, & Vandrick, 1997; Amey & Brown, 2004). For the novice researcher, collaborating with established researchers can build confidence through the in-built support structure. This, in turn, might help overcome any psychological and logistical barriers that may be associated with initiating new projects (Hafernik et al., 1997; Paré & Larner, 2004).

The context of government rewards for increased productivity has encouraged (inter-disciplinary) collaborative research projects, particularly in the emerging or new sciences (e.g. biotechnology). This has led to an increasing trend for researchers to collaborate in recent times (Phelan, Anderson, & Bourke, 2000; Austin, 2001; Milem, Sherlin, & Irwin, 2001). For example, in their bibliometric analysis of Australian educational research, Phelan et al., reported that “most universities undertake a substantial amount of collaboration and, in general, the amount of collaboration has jumped substantially in recent years” (p. 635).

Even though it appears that collaborative research is now a common experience (Wasser & Bresler, 1996; Angrosino & Pérez, 2000), it is surprising that collaborative practices (and relationships) “have been overlooked in most discussions on methodological issues” (Wasser & Bresler, 1996, p. 14). Similarly, John-Steiner,

Weber and Minnis (1998) noted that few studies provide penetrating analyses of collaborative-research practices, while John-Steiner (2000) also declared that less is known about collaborative-research relationships in the social sciences (e.g. education) than the natural sciences.

Self-interrogations of collaborative-research relationships are now emerging in the research literature (Eisenhart & Borko, 1991; Miller, 1992; Clark, Herter, & Moss, 1998; John-Steiner et al., 1998; Roth & McGinn, 1998a; Moje, 2000; Tom & Herbert, 2002; Barker, 2004). Moje, for example, closely examined how her embodied relations with a co-teacher/co-researcher shaped and were shaped in this research relationship. Conversations with her co-teaching colleague, and subsequent reflections enabled Moje to understand how she could be *some body* in the world of schools (i.e. she was a researcher who could perform competently in a classroom context). These also contributed to reduce the power differentials (i.e. where the teacher positioned the researcher as the ascendant partner) (see also Ritchie & Rigano, 2001). Moje concluded that it was essential for researchers to continue to examine their research relations so that multiple ways to collaborate might be identified, “rather than create a standard representation which serves to normalize and regulate our practices” (p. 40).

By studying collaborative-research relationships in successful or productive research teams it might be possible to come to a better understanding of what it means to collaborate in qualitative-research teams. We are hopeful that what we learn from others’ experiences can help us understand our own research practices and relationships. In turn, reporting what we learn about our own collaborative relationship may provide an informative resource for reflection by other qualitative researchers and teams – particularly for new collaborative ventures. The potential for

others to benefit from a researcher's personal learning was considered a bonus for reflexive research by Brew (2001) who reflected: "If in coming to know myself I also help others to know themselves or to know the world in which we live so much the better" (p. 184). The first step, however, should be to suggest some alternative forms or patterns of collaborative-research relationships.

Framing collaborative relationships

Amey and Brown (2004) defined collaboration as "a mutual teaching-learning (give and take) process among the group members where all work on the same task and learn from the discussion with each other regarding the task. Collaboration is integrative, involving the collective cognition of the group" (p. 10). Yet, as they detailed the various development stages or dimensions of their modernist model for interdisciplinary-collaborative research, Amey and Brown neglected to consider the impact of emotions and personal relationships in research collaborations. This limitation ultimately renders their model impotent, when it comes to account for both intellectual and emotional experiences that arise from many successful research collaborations, as the following personal reflections of Barker's (2004) collaboration with teachers from a feminist stance illustrate:

I see the (collaborative) relationships very much like the relationships that I have with my close long-term female friends. We know about one another, we have a sense of trust, there is a comfortableness to talk about our successes and failures – to share the smallest details of our lives and also to celebrate the big moments. We can sit over a cup of coffee and talk about the things in our experience that are serious to us – that have meaning for us. At times some of these topics may not be important, but they give us insight to each other and builds a context for knowing one another. Sometimes we come to a friendship

with a goal in mind and sometimes we are there for the companionship.

Sometimes we are the experts, other times we are the novice learners. In all cases we travel the journey of the relationship together, trying to understand our own experiences and each other as we go. (p. 93)

Acknowledging the limited number of studies upon which to draw for developing an understanding of collaborative-research relationships, Austin (2001) concluded that specific collaborative relationships are likely to vary in the ways that interpersonal dynamics play out, and that these relationships evolve over time.

Similarly, John-Steiner (2000) recognized that collaborative relationships can evolve through a research project. That is, there are different types of collaborative relations, and they can contribute to both intellectual and emotional needs of research partners.

In her studies of artistic and scientific collaborations, John-Steiner found that “partnerships are not static” (p. 142). This was particularly noticeable in collaborations across generations or in mentoring relationships. In these relationships, the novices typically were the primary beneficiaries at the start. “But as the relationship develops, it becomes more symmetrical; the older members are renewed and stimulated by their interaction with the former apprentices who have become their colleagues” (p. 156). Furthermore, her studies of long-term partnerships revealed that collaborators “change and develop unevenly” (p. 145).

Accepting that “there is no longer a single pattern of collaborations,” John-Steiner (2000, p. 143) proposed a loosely structured model that identified four types or patterns for collaboration and the prospect that one pattern can change over time into another pattern. Her four patterns are distributed, complementarity, family, and integrative collaboration. Distributed collaboration is a widespread and the most casual pattern. Similar interests link members in a distributed collaboration where

conversations at times may lead to personal insights or even arguments. Distributed collaborations can form and dissolve quickly in such contexts as conferences, working groups or committees, and online discussion forums. Complementarity collaboration is the most practiced form of collaboration that is based on complementarity of expertise, disciplinary knowledge, roles, and temperament. It is characterized by a division of labor that frequently realizes in mutual appropriation or the stretching of human possibilities of partners at both intellectual and emotional levels after sustained engagement. Family collaborations involve flexible or evolving roles that are frequently intense engagements that cannot be sustained indefinitely. Usually in dyads, partners can help each other shift roles and, like family members, can “take over for each other while still using their complementarity” (p. 201). Finally, integrative collaboration requires prolonged periods of committed activity by partners. According to John-Steiner (2000):

Integrative collaborations thrive on dialogue, risk taking, and a shared vision. In some cases, the participants construct a common set of beliefs, or ideology, which sustains them in periods of opposition or insecurity. Integrative partnerships are motivated by the desire to transform existing knowledge, through styles, or artistic approaches into new visions. (p. 203)

Partners in an integrative collaboration can experience a profound sense of bonding or solidarity during the creation of a new vision through successful interactions. Solidarity is a feeling of membership or belonging to a group of interlocutors, where “our sense of solidarity is strongest when those with whom solidarity is expressed are thought of as ‘one of us’” as opposed to “one of them” (Rorty, 1989, p. 191).

Collins' (2004) sociological theory of interaction ritual chains linked successful interaction rituals to outcomes like solidarity and emotional energy. He argued that interaction rituals have four ingredients that feed back upon each other. These are: group assembly (bodily presence), barrier to outsiders, mutual focus of attention and shared mood or emotional experience, and the latter two variables reinforce each other. More specifically, "as the persons become more tightly focused on their common activity, more aware of what each other is doing and feeling, and more aware of each other's awareness, they experience their shared emotion more intensely, as it comes to dominate their awareness" (p. 48). While Collins tested his theory out by interrogating rituals involving tobacco use and sexual interactions, we now apply his theory to research collaborations.

Generally, successful interactions between participants lead to the production of positive emotional energy or "a feeling of confidence, elation, strength, enthusiasm, and initiative in taking action" (Collins, 2004, p. 49) in individuals and collective effervescence from the group. According to Collins (2004), "this feeling of emotional energy has a powerful motivating effect upon the individual; whoever has experienced this kind of moment wants to repeat it" (p. 39). Saltiel (1998) also recognized how collaborators "could fuel one another, creating an energized dynamic, electric in its feel" (p. 8). He argued that "the synergistic quality inherent in the (collaborative) relationship creates a relationship that is deeply valued as part of the endeavor" (p. 10).

The extent to which solidarity and emotional mood lasts depends on the transformation of short-term emotions into long-term emotions, for example, through storage in the form of symbols like significant collaborative publications or grant applications (Collins, 2004). Rereading such a document, noting a citation to the

document in another publication, or reviewing a related study might invoke emotional memories or meanings that influence interactions and personal identities in future collaborations (Collins, 2004). Furthermore, the effects of interactions in contexts like research collaborations are cumulative in that individuals who have taken part in successful collaborative relationships “develop a taste for more … solidarity of the same sort, and are motivated to repeat” (p. 149) the experience.

At the individual level, interactions are stratified in terms of member involvement, and the outcomes of emotional energy and solidarity (Collins, 2004). This means the outcomes from interactions are likely to be different for individuals within large groups or research teams. Those persons who are on the fringes of the team, for example, are likely to experience less intense emotions (and less commitment to the group – or solidarity – and its symbols) than the socio-metric stars who are at the centre of conversations (Collins, 2004).

Solidarity is not restricted to integrative collaborations, however; it can emerge through both complementarity and family collaborations. In family collaborations, for example, “the ties of solidarity and shared vision are accompanied by the participants longing for the security of a caring community. In many partnerships, participants experience emotional connectedness and a revival of purpose in shared work” (John-Steiner, 2000, p. 124).

In our study we expected to find variation in patterns of collaboration throughout a team’s history and between teams, and stories of successful collaborations might be associated with feelings of solidarity and positive emotional energy. Conversely, reports of group fractures or splits from unsuccessful research teams may lead members experiencing negative emotional energy and a lack of desire to engage in collaboration in subsequent research projects (Collins, 2004).

Understanding collaborative relationships

The evolving framework of hermeneutic phenomenology as described by Ricoeur (1981), van Manen (1990) and, more recently, Roth (Roth & McGinn, 1998b; Roth & McRobbie, 1999; Roth, 2000) was influential in our study of collaborative relationships. The point of phenomenological research according to van Manen (1990, p. 62), “is to ‘borrow’ other people’s experiences and their reflections on their experiences in order to better be able (sic) to come to an understanding of the deeper meaning or significance of an aspect of human experience;” in this case, collaboration.

Hermeneutic approaches (Dilthey, 1976) view the knower and known as interrelated where “the interpreter’s perspective and understanding initially shapes his (sic) interpretation of a given phenomenon, but the interpretation is open to revision and elaboration as it interacts with the phenomenon in question” (Tappan, 2001, p. 50). Validity and truth of claims from this perspective are established through agreement, rather than empirical tests: “if the members of an interpretive community agree on what a text means, based on their jointly shared biases, assumptions, prejudices, and values, then that interpretation is considered to be ‘true’ or ‘valid’ – unless and until a new interpretation is offered that members of that community agree is better” (Tappan, 2001, p. 52). Similarly, Lincoln and Guba (2000, p. 185) asserted: There is no single “truth” – that all truths are but partial truths; that the slippage between signifier and signified in linguistic and textual terms creates re-presentations that are only and always shadows of the actual people, events, and places; that identities are fluid rather than fixed.

This assumption also underpins interpretive studies from the participatory paradigm (see Lincoln & Guba, 2000). Interpretive researchers also adopt a different ontological stance than positivists. As Bassey (1999) explained:

People perceive and so construe the world in ways which are often *similar* but not necessarily the *same*. So there can be different understandings of what is real. Concepts of reality can vary from one person to another. Instead of reality being ‘out there’, it is the observers who are ‘out there’. They are part of the world which they are observing and so, by observing, may change what they are trying to observe. (p. 43) (emphasis in the original)

In Roth’s (2000) phenomenological inquiry into teaching practice, for example, Roth claimed, “the benefits of coteaching fundamentally arise from the experience of *being-together-with* that leads to a silent pedagogy where people learn and harmonize their practices with more experienced practitioners” (p. 14). Furthermore, he argued that the pedagogy of learning and acting through co-participation in doing the real job “is also appropriate for the conceptual and methodological practices of doing research in academia” (p. 15). In relation to collaborative research, this phenomenological perspective suggests that the perceptions of each researcher constitute a horizon within which the researcher understands him/herself. Through co-participation in research projects over time, collaborating researchers’ respective horizons begin to overlap where ways of seeing, knowing and representing are shared (Roth & McRobbie, 1999). While co-participation may lead to developing shared practices, it will not be possible for the respective horizons to merge as one because each researcher participates in different communities, speaking multiple dialects, and with multiple voices. Not only is the unity of Self a fiction, but also long-term

collaborators could never think as one – as a single entity (cf. Roth & McRobbie, 1999).

Co-participation models for research training provide novice researchers with opportunities to experience research for themselves by *doing it* – from design to writing the research reports – with an experienced and competent researcher (cf. John-Steiner, 2000). As Bourdieu (1992) suggested:

There is no manner of mastering the fundamental principles of a practice – the practice of scientific research is no exception here – than by practicing it alongside a kind of guide or coach who provides assurance and reassurance, who sets an example and who corrects you by putting forth, *in situation*, precepts applied directly to the *particular* case at hand. (p. 221) (emphasis in the original)

But as experienced researchers widen their research interests they may not have the opportunity to co-participate with more experienced researchers as they might have done as graduate researchers. Furthermore, as shown by Moch and Gates (2000) there are numerous benefits for researchers in articulating, processing and sharing their research experiences. It appears then that techniques developed to assist experienced researchers process their lived experiences could be fruitful for both the participants and readers.

Studying education-research collaborations

A multiple case study design was employed in this inquiry of collaborative-research relationships. Yin (1989) detailed procedures for the design and conduct of multiple case studies largely consistent with a positivist paradigm (Bassey, 1999). For the purposes of this study we adopted procedures that are better situated within the participatory (Lincoln & Guba, 2000) or interpretive (Bassey, 1999) paradigm. From

this paradigm, interpretive researchers reject the positivists' view that the social world can be understood in terms of grand narratives or general statements about human actions. Instead, descriptions of actions are based on shared social meanings that change as people, even researchers within the same team, change through social interactions.

Twenty-four researchers participated in the study, 13 Australians and 11 North-American-based researchers (i.e. Canada and USA), none of whom had collaborated with either author of this article. Each researcher had presented research at international conferences and had established an international research-publication record in education. There were 14 men and 10 women in the sample with all ranks represented (i.e., assistant professor / lecturer and senior lecturer, associate professor, professor).

Because it was not possible to observe different research teams at work concurrently (i.e. co-participating in and with the researchers), a single researcher-nominated article (i.e. the artifact or product of their research – see van Manen, 1990, p. 74) became the initial focus of our conversations with each researcher. The researcher-nominated articles had been published or submitted for publication in an education-research journal or edited book. Interestingly, Miller's (1992) account of what transpired as she opened up her recently completed book provided support for a text reawakening memories of collaborative-research practices: "... I let the pages fall open for yet another reading. I begin, often in the middle of a paragraph, and am immediately drawn into my remembrances of a particular episode in our group's deliberations as well as my writing of those moments, my inscription of our time together" (pp. 166-167). More recently, Strand and Weiss (2005) adopted a similar approach to reporting the stories of collaborative researchers.

Except in the case of Jodie¹ – who was interviewed via email – each researcher was interviewed actively face-to-face. *Active interviewing* is an interpretive practice between interviewer and respondent who use interpretive resources to co-construct meaning. An active interviewer “intentionally provokes responses by indicating – even suggesting – narrative positions, resources, orientations and precedents” (Holstein & Gubrium, 1997, p. 123). These interviews (each taking between one and two hours) were audio taped, transcribed, and the relevant researchers checked the transcriptions. The checking process encouraged subsequent and on-going conversations with some researchers. An initial set of ten questions, that targeted specific aspects of the researcher’s experience in the nominated article, provided an overall (and flexible) framework for each interview. Cole and Knowles’ (1993) categories of technical, personnel, procedural, ethical, political and educational issues for collaborative research guided the design of each flexible-interview protocol. As the interviews progressed, it was possible to interrogate researcher responses, often leading to the discussion of both similar and different research experiences. In this way it was possible to access a much wider set of experiences than those that were briefly articulated in the text of the focus articles. As well, most of these articles were artifacts of productive collaborations from long-standing research teams, giving us a chance to hear about a range of different collaborative relationships and research practices, from the interviewee’s perspective.

Interpretations

The transcripts of interviews we conducted with the researchers were the primary data sources. Informal conversations with the researchers pre- and post-

¹ All researcher names are pseudonyms.

interview, as well as follow-up email correspondence, and personal narratives we each wrote about our collaboration informed our interpretations.

We met to discuss the interview transcripts on several occasions. During these dynamic sessions we negotiated our separate interpretations of the transcripts along with an injection of our articulation of recalled on-site interpretations of the heard data, forging reconstructed meanings of the data. Wasser and Bresler (1996) called the intellectual realm in which such transformations take shape the “interpretive zone.” Here, Wasser and Bresler argued, “researchers bring together their different kinds of knowledge, experience, and beliefs to forge new meanings through the process of joint inquiry in which they are engaged” (p. 13). Two excerpts from the interview data illustrate the dynamics within collaborative teams engaged in the interpretive zone.

It's an intense pursuit. I think the argument is happening because ... we're working through our different perspectives and justifications. And then finally, usually because somebody has said something, again it's like the titration thing (finger snap), that just makes sense and that fits... It's not like a catfight; it's a professional sort of arguing through. (Prue about her interpretive discussions with her long-term collaborator)

We have rich discussions where we would sit down and talk about these issues and see that we had different perspectives; see the strengths that each person had, the ideas that each person brought to the table... Coding data has been very rich. Sitting down there and looking at the same data and brainstorming ideas have been very rich. (Wesley about his conversations with his on-site collaborators, Kristin and Zac)

Through the writing of various drafts of this article, interpretations were refined and renegotiated further (cf. van Manen, 1990; Davies, 2001).

Our account focuses on just two contrasting (i.e. vertical v horizontal collaborations) mixed-sex collaborative-research teams from the overall sample to minimize the conceptual overload associated with introducing too many actors and their texts. The experiences of an Australian team of five researchers in a vertical collaboration² (cf. John-Steiner, 2000) involving researchers of different status and a North-American team from a horizontal collaboration³ (i.e. involving three, same-status researchers) are foregrounded in the ensuing discussion. Similarities and differences with the broader sample are included only where this clarifies or opens up alternative possibilities for understanding collaboration.

Researchers who have experienced solidarity and positive emotional energy for themselves through their successful research collaborations are unlikely to be surprised by our account. Once particular relationships have been described we would expect readers to sense a level of familiarity with some if not all the experiences, as readers of ethnographical studies do with accounts of educational practices. We invite readers to use our descriptions and interpretations as vehicles to initiate conversations with their colleagues, in the hope that such conversations generate a deeper understanding of their relationships, or help to initiate new relationships with clearer expectations of roles and consequences of their collaborative work.

Learning about, from and through collaboration

In the cases discussed during the interviews, the size of the research teams and the differentiation of researchers by sex and status within the teams varied

² Australian team: Evan (Professor), Frank (Associate Professor), Kate (Lecturer), Jodie (Lecturer) plus a research assistant who was not interviewed.

³ North-American team: Wesley, Kristin, Zac (all Assistant Professors at the time their self-nominated paper was published).

considerably. This provided us with a rich and diverse set of described experiences to bring into our interpretive discussions. However, we “borrowed” most from those accounts to which we could relate our lived experiences as long-standing collaborators. Although we document important discrepant cases, we highlight how solidarity emerged from successful interactions between interdependent members, and how these were both professionally and personally rewarding for individuals and the teams. We also identify the opportunities for solidarity afforded to researchers in vertical collaborations that featured evolving and transforming mentoring relationships through the history of the research projects. The positive experience of being mentored appeared to motivate these researchers to reciprocate by establishing similar mentoring relationships as they themselves became more experienced.

Solidarity from successful interactions within research collaborations

In almost all of the successful/productive⁴ cases of collaboration, it appeared that individual researchers developed professionally by gaining a deeper understanding of the research topic and strengthened their personal relationships with at least one other member of their research team. Mutual professional respect for each other frequently developed along with their solidarity. For example, from Jodie’s perspective: “the collaboration was successful because of the shared passions and beliefs, and working with people who could be sensitive to, and accepting of, the deep personal vulnerability you each bring when you are working on something that means such a lot to you.”

The Australian-research team was structured vertically with two chief investigators (Evan and Frank), two associate investigators – a lecturer (Kate) and a teacher-researcher who became a lecturer at another university (Jodie), and a research

⁴ The interviewees, rather than the researchers, identified particular collaborations as successful or not successful.

assistant (who was not interviewed). All five collaborators met formally together on only five occasions. However the three most junior researchers (all women) met twice a week because, as Kate explained, “we would be conversing with Jodie via email about what she was likely to be doing and when and if there were any changes to the program.” Informally, Kate would talk about the project at least twice a week over morning tea with Frank. Although Evan and Frank did not conduct classroom observations or interviews, they had access to interview transcripts and communicated with other team members regularly. While Frank and Kate formed an informal dyad for discussions about the project, Evan and the research assistant appeared to form another dyad. These dyads intersected through the interactions between the research assistant and Kate with Jodie, forming a complex network of interactions about the project. Kate described the interactions between researchers in her project as follows:

For me it's particularly important because that's how I like to work. I need to be able to bounce ideas around; I need to be able to feel like I can throw something out into the air and it's not going to be crucified when it hits the table. That there is a genuine sharing and a genuine honesty that is constructive about how we go about the process of finding out what we want to find out... I want to work as part of a community whereas previously I might have thought that you need to be able to work independently and not need that kind of support. I've learnt now that experienced researchers feel that same way.

Kate gained confidence to suggest hunches and refine these tentative ideas into assertions by discussing her emerging ideas with her closest collaborator (i.e. Frank) before whole-team meetings. Spiraling up ideas through expanding circles of team members could be a strategy that other large teams employ to encourage risk taking in

a supportive climate. The personally close and less-formal social contexts for the initial meetings with Frank was crucial for Kate and her developing solidarity with Frank, specifically, and the whole-team, generally. These patterns of interactions within dyads nested within the team suggest the possibility for differential solidarity within the same team. Collins (2004) showed that there could be stratification of emotional energy and solidarity at the individual level within groups. We are now able to draw attention to the stratification of dyads nested within groups such as research teams.

As well as scheduling formal-team meetings to discuss interpretations and draft copies of papers, several research teams met less formally for coffee or drinks. This combination of formal and social meetings also appears to have been an important factor in the successful-research alliances or support groups formed by groups of feminist scholars (see Richmond & Kurth, 1999; Davies, Dorma, Gannon, Laws, Taguchi, McCann, & Rocco, 2001; Barker, 2004).

Throughout Wesley's collaboration with Kristin and Zac in the research team from North America, their professional and social lives intersected, especially during the intensive phases involving such practices as data coding and writing. As Wesley explained: "we often would go to the local pub and sit and chat about our research and so on." So, for someone like Wesley who confessed to being "an emotional person," "the friendship would have to grow" between collaborators. He continued: "I think it's important for you to know a person and like the person; to have a lot of common ground. It's almost like a marriage isn't it?" The use of the marriage metaphor to explain the close personal relationship between collaborators is not new and is suggestive of a family-collaborative pattern (cf. John-Steiner, 2000). Baldwin and Austin (1995, cited in Austin, 2001) found that: "Marriage and family metaphors

(including ‘sisterhood’ and ‘like close cousins’) were used by some of the collaborators to suggest very close relationships with high levels of sharing and personal connection” (p. 132).

The immensely rewarding interactions during the coding of data and writing draft manuscripts within the collaborative group generated group solidarity between members. From Wesley’s perspective: “it solidified our friendship as a group.” Kristin reciprocated Wesley’s sentiments when she commented: “I genuinely like working with Zac and Wesley. We enjoy each other’s company; we enjoy bouncing ideas off one another. We’ll continue to work together because we genuinely like it.” Unsurprisingly, the literature also notes the link between strong professional and personal relationships in long-term collaborations. Lincoln (2001) found that:

Despite differences, long-term collaborations that are not spousal share at least several common characteristics. First, they exist not only because individuals find them productive, but also because individuals like each other as people. They often exist because individuals share each other’s values and outlooks, or at least a healthy respect for those values. They, too, are part of a “long conversation,” often about a wide-ranging set of interests, not merely about the work in common. They often come into being because of shared professional and even social action agendas; issues such as the creation of academic community and the nature of professional life are often critical. (p. 54)

The commonsense view that long-term collaborators develop solidarity and close friendships, however, masks the different sorts of friendships between collaborators and that these relationships were far from static. While Kristin, Wesley and Zac socialized together when they could because they were “dear friends”

(Kristin), friendships in some other cases did not extend to social associations. For example, talking about her friendship with a more senior male researcher, Nadine (a North-American researcher) explained:

It's not like a friendship where we would go out and listen to music on the weekends or something like that... It's more like he's somebody that I enjoy talking [to] and if I found myself seated on an airplane next to him I'd be happy because we'd get to have a conversation.

Carla (a North-American researcher) expressed a similar view when she explained her meaning of “like” following the declaration that she chose to collaborate with researchers outside her own university because she did not like her colleagues.

Like doesn't necessarily mean that I have to go out with them socially or something like that. To me like means that I think they have interesting ideas. I mean like in a way that they're fun to work with. Life is too short. I don't want to sit around and work with somebody who isn't enjoyable to work with. So like can also mean ... the social kind of like as well as the intellectual respect...

In these discrepant cases personal affection for their respective collaborators was less significant than the professional bond between them. These close but non-spousal collaborative relationships could usefully be identified in terms of solidarity rather than friendship. Some relationships will inevitably, however, be more personal or intimate (e.g. family collaboration).

Despite the overall close personal bonds or solidarity within several collaborative teams, the relationships frequently varied in levels of intensity, cohesiveness and amicability throughout and between projects. Wesley characterized his collaboration personally intensive and professionally satisfying. Such positive

emotionally charged periods have a high level of “synergy” (cf. Saltiel, 1998) and were contrasted with periods of “fragmentation” which were associated with lower levels of satisfaction. As Sgroi and Saltiel (1998) argued, “a more powerful and intense learning experience results from people ‘connecting’ intellectually” (p. 89). While his collaborators (i.e. Kristin and Zac) opposed the negative image generated by the use of “fragmentation” to describe those periods where individuals worked on different components of the project separately, they too appeared less satisfied with their relationship during these times. We did not take “fragmentation” to equate to friction, even though outsiders could easily do so, but rather episodes where team members suspended their bodily presence and mutual focus (cf. Collins, 2004) which meant that it was not possible to share emotional experiences and reinforce group solidarity. For all collaborators in this team, solidarity had been forged, especially during the most intense emotionally charged phases. At the time of interview with Wesley, he suggested that while his collaboration had been extremely rich, “I think it’s died down, it’s sputtered, but it could be rich again.” For Wesley, the return of Kristin from sabbatical leave was awaited with expectations of greater synergy: “I think Kristin will be a very powerful congealing force. She’s that kind of person, she’s just positive, she’s very Type A, self-motivated” – the sort of leader or “electric battery” for group expressiveness, “who is able to propagate such a mood from his or her own stores of emotional energy” (Collins, 2004, p. 126). This is also suggestive of a longing to return to the emotionally charged periods of their work together, as predicted by Collins (2004).

Kate and Frank forged a closer bond than with other team members. Likewise Kristin and Wesley established a tighter family collaboration (cf. marriage metaphor) than with the entire team, whose relationship could be characterized in terms of

complementarity (Wesley's stated feelings of synergistic anticipation for Kristin's return from sabbatical). Unsurprisingly, Wesley and Kate had known each other for many years through their graduate programs before entering academia. We took Wesley's comments above as reinforcement of the interpretation that Kristin and Wesley had developed a tighter non-spousal solidarity within the larger team's own developed solidarity. This reinforces our earlier suggestion that solidarity within large groups or research teams might be a stratified construct (cf. Collins, 2004).

Trina, who also collaborated with Kristin (even though they worked at different universities), gave the most metaphorical account of variability within collaborative relationships. Trina characterized her relationship with Kristin in terms of peaks and troughs, where the peaks corresponded to intensive periods of writing, and the troughs related to those periods in between where they might do their own reading separately. This characterization was not perceived in negative terms because she felt that it was not possible to "stay constant in any relationship." She continued:

You can't have a constant intensive affair if you want to call it that because you just burn yourself out. So I think there is some value in having a burning progress taking place and then letting things simmer down for a while... It would be like a really hot flame, you would run out of fuel... And then I think if you get back together again you start to reflect on it, you can re-ignite those embers.

"An affair of the mind," was a metaphor used by Fine (cited in John-Steiner, 2000) to describe the high level of emotional energy associated with an intensive collaboration, which cannot be sustained indefinitely, as articulated by Trina about her collaboration with Kristin.

Living through the peaks and troughs, or ebb and flow of collaborations, sometimes required individuals to exercise patience and empathy for the other's circumstances and priorities. Not wishing to damage her relationship with her collaborating teacher-researcher, Frida (a North-American researcher), for example, was prepared to suspend work for months until her teacher-researcher collaborator could resume attention to their research. She explained:

What I learned in this collaboration was how you go with the flow, how you need to be flexible. I had my own way of doing it, but I've got to really push it aside and listen to him and what he really wants to do, what he can do with the time limitations he has.

Sustaining relationships required an effort to overcome professional obstacles by becoming sensitive to strains in schedules and competing agendas. For Frida, she persevered because she had “too much invested in these collaborations and it kills me to let go.” Ascribing responsibility for exercising constraint by individuals who need to suspend their own agendas to accommodate other's crises is impossible ahead of schedule. What is clear is that unless empathy for the other's peculiar circumstances is achieved then the collaborative relationship is likely to deteriorate, even in long-term relationships.

Even though Prue (a North-American researcher) had been working in a deeply rewarding collaboration with an acclaimed researcher for 10 years, it deteriorated when interpersonal relationships broke down. The “sister-mentor” metaphor used by Prue to describe the early stages of their relationship gave way to the marriage metaphor when Prue suggested how the relationship might ultimately fold – “I feel like I'm about to ask her for a divorce.” Rather than feeling broken by these events, Prue came to “the realization that new collaborations might reawaken

her interest / desire / quality of research. From this experience and the literature on collaborating couples (Creamer & Associates, 2001), researchers in family collaborations might maintain their relationships better by intentionally collaborating with others concurrently. This could possibly serve to “reinforce their separate scholarly identities and to establish other affiliations while also keeping the spousal collaboration vital” (Loeb, 2001, p. 182).

Opportunities for solidarity from mentoring in collaborative research

John-Steiner (2000) characterized collaborations involving a mentoring relationship as “an expression of hope” (p. 151). For the senior partner who mentors a student or junior colleague, she reasoned, the relationship can provide continuity of knowledge as well as stimulation to “reach for transformational ideas with the help of energetic and questioning young colleagues” (p. 151). For the junior colleague in a mentoring relationship, he or she is afforded opportunities to observe and participate in the practices of the research community, providing “a guided entry into” that community (see also Bourdieu, 1992).

Even though mentoring was not a feature of horizontal collaborations like Wesley, Zac and Kate, there was widespread agreement across cases that mentoring was an important practice in vertically structured collaborative-research teams. For example, Carla considered it her responsibility to “induct” her graduate students “into the research community.” Deliberately mentoring graduate students for Carla also created a ready-made team of keen-novice researchers with whom she could interact, providing a stimulating environment for her to conduct research. Similarly, Frida strongly believed that mentorship was a “two-way street.” She continued: “Mentorship is … good for the mentor and the mentee, and going back and studying

your own experiences in the light of somebody who you trust and trusts you is a wonderful form of collegial relationship."

Mentoring can occur between colleagues with differential experience in particular practices, and between professors and their graduate students. While the formal relationships might differ in these two contexts, there were some strong similarities in the mentoring relationships between cases as they were discussed during our interviews.

With respect to her participation in the Australian-research team involving researchers of differential experience and status, Kate was conscious of the mentoring she received from her more experienced colleagues, particularly from Frank, when she said:

So for me there's been aspects of mentoring that have meant that the mysteries of research have been unveiled to me and that also I feel encouraged that it's not something that I'll never be able to do by myself. And it also encourages me to encourage other people into a research culture as well.

But Kate's entry into this team was no accident. Frank identified Kate as a "really smart, capable person" during her graduate research. Accordingly, Frank "created opportunities for her to make the transition to uni [teaching/researching]. And at every step along the way, she just proved herself better and more capable so when chances came up to teach [and research] with her, I jumped at it." So why did Frank create opportunities to mentor Kate when he already had established a successful collaborative relationship with Evan? As Frank answered, because "he'd (i.e., Evan) done the same for me. I've been well mentored and one of the things about mentoring is making sure it doesn't stop with you." Alternatively, given the solidarity of their research relationship and the opportunities Frank "created" for Kate, it is also possible

that Frank recognized potential for an intellectually and emotionally satisfying relationship to develop from his early professional encounters with Kate. Again, suggesting a template for others to use in recognizing such potential is beyond the scope of any interpretive study. All that can be inferred from the data and related literature (e.g. Collins, 2004) is that early interactions can trigger emotional responses from previously successful experiences that cue researchers to express hope, by taking the risk of entering a new collaborative relationship (cf. John-Steiner, 2000).

Mentoring relationships involved much more than promoting a junior researcher's talents, easing the researcher into the wider international-research community through conference presentations, and making introductions to valuable-professional contacts. Working with more experienced colleagues "unveiled" some of the mysteries of research, and helped less experienced researchers develop effective practices in interviewing, interpreting data, writing, selecting a journal, and revising a paper in response to an editorial decision. In relation to interpreting interview data together, for example, Kate recalled:

What's happened is I've had a chance to interview with Evan or Frank and then we'd debrief not only about the kinds of information that we found but the kinds of questions that we asked and how effective or non-effective they were for getting out what it is that we're looking for. I suppose they're thinking out aloud about the process of research at the same time as trying to make sense of the data that we get. And I find that really helpful for my thinking. And then in having meetings where we bring some of the data along that we've collected or say I've collected some data and I'll share it with the rest of the group and then we would talk about the meaning of that. For me it helps to see other ways into thinking about things.

Evan further articulated a typical procedure by which each team member contributed to the understanding of others. This excerpt also reinforces an earlier claim that each member of the team was valued and trusted in bringing important ideas to the attention of the whole team, the interdependence necessary within the team for the emergence of solidarity.

We're not all looking at [all] primary data sources; so for example if you're interviewing students, you might have a set of [interviews]... You might reduce those often to a set of cells that fit on a sheet of A3 paper. And everybody will do the same thing. And once every 10 interviews you'll stick big asterisks because there's really important stuff here that you actually do need everybody to go and listen to. So there's a distillation process leading to something that is shared.

Even though Roth and McGinn (1998a) wrote about the training of graduate students in research practices, their comments apply equally well to the learning trajectory taken by junior academics / researchers like Kate in her team with Frank and Evan, as illustrated above. Roth and McGinn (p. 219) concluded:

Central to our framework is the idea that the best way of learning to do research is to participate in varied aspects of research with one or more experienced practitioners. Learning is understood as a trajectory from legitimate peripheral to core participation in a community that practices educational research.

Successful mentoring relationships seemed to rely on a degree of mutual respect and equality, rather than a traditional “apprentice – master” arrangement. Damien (an Australian researcher) suggested, “it’s easy to be mentored when you want to be there.” He described his mentoring experience as a junior academic (under

Ben's supervision) in terms of "collegiality and most of the mentoring, if you can call it mentoring, took place as part of that collegial relationship." Ben considered that part of his responsibility, as a senior academic, was to socialize people, particularly full-time doctoral students, into the world community, as he was when he commenced research, characterizing the process as an "apprenticeship of equals."

Like so many other professors, Trina established mentoring relationships with her graduate students to help develop their research confidence in preparation for future research roles as professors. By assigning a leadership role, that is responsibility for the project, to each competent student, Trina found that her students more readily assumed co-ownership of research projects and were more productive. Rather than handing over projects to ill-prepared students, Trina typically implemented a three tiered plan similar to that adopted from a cognitive-apprenticeship metaphor; that is, she was "a catalyst to begin with and then maybe a scaffolder, in a sounding board capacity and then [she became] less significant." The transition to greater equality between research partners fosters interdependence and possibilities for the emergence of solidarity (see John-Steiner, 2000).

The last (fading) phase in Trina's practice with her graduate students was an important step overlooked in another collaborative relationship with dire consequences. After about eight years into their productive collaboration, where a high profiled dynamic researcher had mentored Prue, for which Prue was extremely grateful, the relationship began to sour. While there was a host of factors that contributed to the deterioration of the relationship, Prue became somewhat resentful that the ongoing demands she perceived were offloaded on to her by her "mentor-sister" had interfered with Prue's capacity for developing her own research agenda, away from her mentor's influence. In Prue's words:

At first it was fine, it was like mentoring and I recognized it as that and I really appreciated it. But I think in the last couple of years really I've started to realize that... I could have been doing research there... It's kind of like I never get to do my own research and write it because I'm so busy.

Prue's negative emotions were by-passed. Without addressing her concerns within her team, resentment was allowed to build into anger which sets up potential for cycles of broken social attunement, failed solidarity and further anger (Collins, 2004). Negative emotional energy and failed solidarity from unsuccessful interaction chains are not confined to mentoring. One other researcher we interviewed was so affected by a negative collaborative experience that he chose to conduct all future research alone.

While the form of mentoring varied across cases one commonality apparent was the phenomenon that those who were successfully inducted into research collaboration through a mentoring process invariably initiated similar relationships when they were in a position to do so. A motivating factor in initiating such mentoring processes is the opportunity to generate a collaboration that could lead to solidarity that from previous experience can be professionally and/or personally rewarding. While research students or junior researchers might exercise agency by inviting more senior colleagues to work with them on a project, at least on a trial basis, the onus for initiating new collaborations with inexperienced researchers rests with senior researchers who are prepared to foster non-exploitive relationships from which solidarity and positive emotional energy could be expected to flow.

Further considerations

In this final section we consider the implications that might arise from this study of solidarity in collaborative-research relationships for our own work together as well as possibilities for other researchers.

The research teams in the foreground of this article were mixed sex, even though researchers from both all-male and all-female teams were interviewed. There have been some suggestions in the literature (e.g. John-Steiner, 2000) that women may be more disposed to, and value more highly, participating in collaborative-research teams than men. We found no evidence of this in our study. Both males and females in mixed-sex teams experienced solidarity through their successful interactions. This also occurred in same-sex teams. For example, one Australian-male researcher described his relationship with an Asian-male colleague as follows: "We have formed a very strong, deep friendship which will continue... At a fundamental level of two human beings interacting we enjoy each other's company, we like doing things together. We like the philosophical arm wrestle about the way the world is." While such a close personal and professional bond between men might be culturally appropriate in both Western and Asian contexts, Luke (2002) alerted researchers to the difficulties for Asian women to collaborate with men in research teams. She reported that senior female Asian scholars indicated that so-called Asian values and religious-cultural ideologies demand the enactment of a specific construct of Asian femininity that constrains their capacity to enter and participate in collaborative-research relationships with male colleagues. Accordingly, the mixed-sex cases discussed in this study are less likely to be relevant for Asian women.

Notwithstanding this limitation, the study was significant for our own collaboration and we hope informative for other Western researchers. Discussing the collaborative experiences of other researchers gave us a vehicle to help us make our own relationship more open to mutual interrogation, where we could clarify our expectations of each other and express our goals for professional and personal development. This might not lead to a "measurable" improvement in our collaborative

relationship, but our solidarity gives us confidence to continue together taking on new challenges.

Our long-term research partnership started as something like a vertically structured complementarity collaboration in which Donna was employed by Steve as a research assistant. We worked together on several projects from an evolving interpretive paradigm. Like Frank (in his collaboration with Kate), Steve initiated the research collaboration with Donna because he recognized that she had complementary skills that could lead to a rewarding collaboration. That Donna accepted the invitation suggests that she too recognized possibilities that would complement her professional and personal goals. As we wrestled together with new ideas and interpreted data together our relationship progressed in similar ways as the other teams in the foreground of this article. We experienced intellectual and personal rewards working together, and the positive emotional energy that flowed from these successful interactions was stored in the artifacts (i.e. journal articles) produced by our joint efforts. These symbols of our solidarity not only reminded us of our strengthening relationship, but also motivated us to continue to work together, even now that we are geographically separated as we work from different institutions. Like Wesley in his collaboration with Kristin, we would both prefer to interact in a bodily co-presence (cf. Collins, 2004). We compensate for this loss now, by conducting regular meetings by telephone but we acknowledge we remain successful in this mode only because of our built-up stocks of solidarity over a long period of an integrative collaboration (cf. John-Steiner, 2000).

In our collaboration, we valued our dynamic discussions or dialogue (cf. Clark et al., 1998; John-Steiner, 2000) where we came to learn about particular events from our different stances (see also Ritchie & Rigano, 2001). These positively charged

emotional interactions fuelled the emergence of our solidarity. Similarly, experienced and junior researchers alike from the various cases of collaborative-research teams in this study also highlighted the value of such dialogue. Against this background, we can appreciate the reasons that Clark et al. (1998) highlighted dialogue in their collaborations. Yet there were several peculiarities about each of the cases, making it impossible to create grand narratives or definitive models of collaboration. Describing different ways researchers collaborate, from their different perspectives, might be more illuminative than reducing such experiences in the form of a definition or model.

Friendship and solidarity were reported common outcomes from the successful collaborations identified, including ours. Yet “friendship” took on different meanings in terms of personal intimacy for the researchers across cases. Solidarity might therefore be a more tangible and robust construct to explore further in subsequent studies of collaborative relations in education-research teams.

We now know that solidarity within a large research team is not experienced evenly across the team. Stronger bonds between individuals in particular dyads nested within teams were evident; that is, solidarity was stratified within teams. It is possible to observe a family collaboration within a complementarity collaboration, for example – a circle within a circle, as it were. This can now be explained in terms of Collins' (2004) theory of interaction ritual chains. It is the quality of interactions and the positive emotional energy that flows from these interactions that strengthens bonds between collaborators, and differential interactions will lead to differential experiences of solidarity. Because there will be differences in frequency of interactions and emotional intensity between dyads and the whole team, solidarity is likely to develop more quickly in dyads than across the whole team.

On the basis of the data presented here, we hypothesize that solidarity can be stratified across large research teams. This hypothesis extends Collins' (2004) theory from stratified emotional experiences for individuals within groups to attribute differential solidarity to units such as dyads nested within larger groups, and adds an important emotional dimension to the literature on research collaboration (cf. Amey & Brown, 2004). Because Collins has justified emotional energy as an empirical construct, it should be possible to investigate our hypothesis micro-analytically in large research teams that are prepared to video-tape their interactions in different settings involving both whole- and sub-unit meetings.

Not all research teams experience positive emotional energy and solidarity (see also Moje, 2000). Even long-term collaborators can experience solidarity failure, especially when one member who experiences negative emotional energy does not bring his or her concerns to the attention of the other(s) for resolution. One strategy that might keep long-term teams fresh might be to agree to work in other research teams periodically, constantly injecting new ideas, techniques and renewed enthusiasm in their work together (cf. Loeb, 2001).

Several strategies to encourage beginning researchers to participate meaningfully in research teams have been identified from our study. Successful high-energy interactions within teams are crucial for solidarity to emerge. Spaces in which individuals can express their intellectual ideas and personal feelings with respect to group processes must be created. While senior researchers have a responsibility to create such supporting spaces, beginning researchers also need to exercise agency by suggesting alternative spaces should existing patterns of interactions be unfulfilling. Forming supportive sub-units like dyads that meet regularly in both formal (e.g. meeting rooms) and less formal contexts (e.g. café) are likely to afford beginning

researchers opportunities to take risks as they express their preliminary assertions and even wild ideas. The positive emotional energy that flows from these meetings might provide the confidence for beginning researchers to take further risks in a larger research team. As reported by members of the Australian team, a promising practice to reinforce confidence gained in smaller units is for all members to contribute to formally scheduled meetings of the large team by sharing highlighted transcripts and discussing their initial interpretations.

Many of the researchers we interviewed volunteered to us how helpful it was for them personally to “process,” perhaps for the first time, their lived experiences as researchers (cf. Moch & Gates, 2000). For example, Frida replied to her receipt of her interview transcript: “You helped me / pushed me with your questions and comments to think about my work in certain ways I haven’t quite articulated before. Thank you!” Herein lies potentially the most significant pedagogical outcome of this work. Readers might be encouraged to initiate discussions about their research practices with their collaborative partners, possibly leading to enhanced understanding of their work together as well as stronger interpersonal relationships: “research and life are drawn more closely together in our understanding of research/writing as a form of thoughtful learning. And thoughtful learning has the dialectic effect of making us more attentively aware of the meaning and significance of pedagogic situations and relations” (van Manen, 1990, p. 155). As well as making their relationships more explicit within team meetings, collaborative researchers could consider articulating their roles and contributions to interpretive interactions in the publications that symbolize their solidarity. This practice might help readers to contextualize the stated assertions and more readily apply the findings to their own lives.

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