

Sociocultural and Feminist Theory: Mutuality and Relevance

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The study of human activities, beliefs, minds and emotions goes back to antiquity, as Nussbaum (1998) reminds us. But it is only in the 20th century that the psychological domain became a major field of systematic inquiry. It is shaped by the theoretical endeavors of Freud, Piaget, Vygotsky, Bruner, among many others, as well as the methodological structures of American experimentalists. It is a contentious field, deeply divided between those searching for universal features of the mind, and those who see human activity grounded in historical and cultural experience. In these closing years of the century, we are faced with a new challenge: that of the contradiction between models of human agency which reflect the strong pressures of the global market and that of the realities of the workplace. Economic models encourage beliefs in humans as lone, competitive actors, engaged in economic choices of the so-called rational man. In contrast, sociologists (Ferge, 1997) tell us of the increasing chains of interdependence in areas of social welfare and reform. And in a surprising new development, management specialists advocate participatory forms of planning with working teams within their organizations. They consider these internal cooperative structures effective in global competition (Katzenback & Smith, 1994).

These competing conceptions of the nature of human nature -individualism versus social interdependence -are widespread within the human sciences. Wertsch (1998) writes of this contrast as an unproductive autonomy. He adds that in most contemporary discourse, analytical primacy is given to individuals as agents. Feminist and cultural-historical theories, in contrast, recognize the importance of going beyond the individual when exploring human development and action. These traditions share an emphasis on the roles of *context* and *interdependence*. While approaching the social sources of development in somewhat different ways, scholars representing both groups play an important role in providing alternatives to traditional narratives of individualism. There is an important philosophical affinity between cultural-historical and feminist theories, but, suprisingly, the awareness of this affinity has been largely absent in most scholarly work within the cultural-historical activity theory tradition. Even in my own case, although I have been deeply involved with both for many years, my knowledge has been developed in parallel lines of inquiry and study. Now new insights reflect my integration of cultural-historical and feminist theories in novel and, I hope, cogent ways.

The cultural-historical theory I stress in this chapter is Vygotsky's, with its focus on the dynamic interdependence of social and individual processes, and its strong emphasis on development, co-construction, synthesis, knowledge transformation, and semiotic mediation. These themes provide an important connection between feminist and Vygotskian theories. The approach to gender that I will present is akin to that of the philosopher Harding (1996), who wrote: "Gender is now understood to be a *relationship* between women and men ...not a property that women and men have apart from the other gender" (p. 435).

We psychologists are shaped by our experiences, part of which is the predominance of male theorists in our disciplines. Feminist scholars have confronted this reality and have searched for ways to broaden this asymmetry. They have included women's voices in their inquiries and have explored the implications of the changing roles of women inside and outside the academy (Miller, 1986). They ask: How are we women to be defined? By our reproductive roles? By our economic contributions? By our political struggles? By our partnerships with each other and with men? They have debated the difficulties of gendered discourse and the dangers of being misunderstood as espousing essentialist positions.

Obviously, I will not address all these questions. What I will argue is that feminist and cultural-historical theory have some crucial contributions for each other. Central is the notion that humans come into being and into maturity in relationship to others. Through interdependence we achieve competence as well as connection. This stance contrasts with the classical, Western view that we are driven by powerful intrapsychic forces to individuate, and to become successful, autonomous beings.

A recognition of the generative power of interdependence is shared by feminist and Vygotskian scholars. In the cultural-historical tradition, emphasis has been on interdependence in the learning/ cognitive domain. For instance, van der Veer and Valsiner (1991) write of Vygotsky's *intellectual interdependence* with his collaborators and with many scholars he studied and translated. This close collaboration included Luria and Leontiev, and in addition to them, his women coworkers, Natalia Morozova, Josefina Shif, Roza Levina, Lidija Bozhovich, and Lija Slavina (G. Vygotskaya, personal communication, June 4, 1998). Feminist psychologists address relational sources of development, many of them in the emotional domain. Scholars in both groups seek to overcome the dichotomy between thought and feeling. My objective in this chapter is to propose a working synthesis of ideas from cultural-historical and feminist sources and to make more visible the family resemblances between them.

These resemblances have been noted by some previous authors. Tarule (1996), one of the coauthors of *Women's Ways of Knowing* (WWK) wrote:

Vygotsky's emphasis, as in connected knowing [one of the epistemological stances presented in WWK], is on how thinking and knowledge are mediated through interaction with others ... [Vygotsky's approach] values a dialogue that relies on relationships as one enters meaningful conversations that connect one's ideas with others. (p. 277)

Tarule points out links between the two traditions, but does not elaborate on them. These links include recognition of the social sources of thought and of the role of language in maintaining and developing meaningful connections.

In this chapter, where the formulation of these theoretical links is my objective, I begin with human connections as formulated by Belenky and her coauthors (Belenky, Clinchy, Goldberger, & Tarule, 1986) and by other feminist authors. I then turn to a discussion of the interrelationship between their work and cultural-historical theories. I will end with a discussion of *collaboration*, the current focus of our research in New Mexico. I ask whether there are differences in how men and women envision sustained artistic or scientific partnership. The issues I am presenting are challenging both theoretically and personally. They have already been raised by some participants in our virtual thought community (e.g., Bryson & de Castell, 1996; and during the 1998 ISCRAT Congress by Lemke, 1998; Nussbawn, this volume; Star, 1998; Wagner, 1998). But on the whole, concerns with gender have received limited and sporadic attention in our decades-long interactions.

Interdependence and Development

The recent writings of American feminist psychologists, including Miller's (1986) *Toward a New Psychology of Women*; Gilligan's (1982) *In a Different Voice*; Belenky et al. (1986) *Women's Ways of Knowing* all emphasize relational dynamics in human development. These authors have listened to women's personal narratives, to their accounts in clinical sessions, and studied the development of adolescent girls. They examine the consequences of historically- and culturally-patterned experiences and their impact upon women.

Among historical factors relevant to psychological development are women's traditional exclusion from schools and colleges. In spite of remarkable changes in educational opportunities in developed countries during the 20th century, there are still twice as many illiterate women as men throughout the world. Life span has also changed in this century. Women are living longer, having fewer children, and spending many years by themselves without major family responsibilities. However, women still earn less than men, because their jobs are concentrated in low-paying service fields (Lerner, 1997).

There is a striking correspondence between women's traditional responsibilities for infant survival and family duties -what the psychologist Dinnerstein (1976) refers to as "the hand that

rocks the cradle" (p. 28) -and the jobs outside the home that are deemed appropriate for women. Most women are in jobs that require relational skills.

Feminists are addressing the central relational activities in women's lives through detailed, nuanced studies. They use interviews, therapeutic materials, and present moral problems to participants. Their works are widely read and cited. But when they report gender differences in moral values, relational attitudes, or epistemologies, they are criticized as leaning toward essentialism. Some see them as supporting biological determinism: a view in which women are "fundamentally all alike, a homogeneous group with common life opportunities and experiences already 'known' to us before we actually see them or hear from them" (Harding, 1996, p. 436).

The charge of essentialism is a misrepresentation of the way these authors see gender differences. Goldberger (1996b) recently described their intent: "In the mid-1980s, women-only studies were seen (by us and others) as correctives to psychology's historical neglect of women's experience" (p. 7). The work of the women psychologists who followed Miller's and Gilligan's lead was aimed at overcoming this historical neglect. They independently reached conclusions that supported each other. One example of concurrence about relational themes came from studies of children's literacy. Dyson (1997) collected and analyzed stories written over a two-year period by children in a single classroom in the San Francisco Bay area in the United States. She found that 49% of writings by girls centered on relationships with family and friends, and three quarters of their narratives included specific, named emotions. Only 14% of boys addressed such themes. Most of their stories were about superheroes from the media, a theme hardly occurring among girls.

In the research literature on gender differences we encounter a complex picture. There is rapid change in some areas, conflict and resistance to change in others. Individually identified gender differences are few. Two of them are higher mathematical skills in males, and higher verbal skills in females (Maccoby & Jacklin, 1974). However, these differences are culture-specific, linked to socializing and educational practices. Recent meta-analyses show a decrease in male-female differences on standard measures (Hyde, Fennema, & Lamon, 1990). These are welcome findings for those engaged in intervention programs and in the struggle for new opportunities for women. But in discussing these findings, Bookman (1997) writes

that this should not be read as a linear narrative of progress since other gender specific phenomena continue to present themselves across time. The explosion of anorexia-bulimia among women in the late twentieth century provides a dramatic example (p. 5).

This explosion warns that the increasing participation by females in formerly male domains may trigger anxiety and self-doubt among some.

Following Maccoby's (1990) analysis, Bookman also mentions gender asymmetries which surface when behavior is assessed in *social contexts* rather than observed or tested individually. In summarizing several studies of children's interactional styles, Maccoby found that girls tend to withdraw from groups in which boys exercise power-assertive behaviors. They prefer modes of interaction which "restore or maintain group functioning" (p. 516). She further suggests that the preference for membership in same- sex groups during childhood has long-term consequences for males and females. In adult task-performing groups, females engage in more maintenance or socioemotional behaviors, while males generate more ideas (Aries, 1996). Studies in group dynamics also reveal that men are more dominant in problem-solving groups than women, a finding Maccoby interprets "that it is especially the monitoring by other *men* that inhibits men from entering into reciprocal influence with partners" (p. 518).

These are interesting differences, but they are not universal. As Deaux and Major (1987) have shown, situations differ in the strong or weak pressures they bring to bear on participants who display gender-stereotypic behavior. The greatest sex differences are to be found in those settings in which gender stereotypes are activated (Aries, 1996). These findings support the importance of contextual factors in male/ female behavior. A common emphasis upon context emerges both from feminist and cultural-historical writings. Cole (1996) works with the idea of context "as that which weaves together" (p. 135). It is not simply the surroundings of an act, but a dynamic movement between systems of activities, and the culturally

and historically constituted contexts in which they take place. Although the issues of concern to feminist scholars -for instance, the development of identity -are different from those of Vygotskian scholars who study cognitive development, they both give context a central place in their theoretical positions. Scholars in both groups have rejected an historical-methodological approach relying upon standardized, static procedures.

One of the most influential developmental studies tracing changes in gendered behavior is the work of Brown and Gilligan (1992) and their coworkers. Their longitudinal studies document the crises girls experience when struggling with the psychological costs of competence versus correction. They write of an impasse where authentic relationships come into tension with conventional relationships. They trace the muting of girls' voices, the high incidence of depression, of eating disorders, and of suicide attempts when girls reach adolescence (Gilligan, Lyons, & Hammer, 1990). This contrasts with the exuberance and self-confidence of preadolescent girls.

For many developmentalists, relational dynamics first appear in the infant's dependence for survival on her/his caregivers. But in the interpretation of children's development past the period of infancy, theoretical differences emerge in how interdependence is interpreted. Surrey (1991) summarizes the mainstream theorists' approach which emphasize

the importance of the separation from the mother at early stages of childhood development (Mahler, 1972), from the family at adolescence (Erikson, 1963), and from teachers and mentors in adulthood (Levinson, 1978) in order for the individual to form a distinct separate identity. High value is placed on autonomy, self reliance, independence, self-actualization, listening to and following one's own unique dream. (pp. 52-53)

Differing from that view of development, the Stone Center group (of which Surrey is a member) argues that relational competence is an important objective of development. They reason that people are most likely to achieve their individual objectives when they are sustained by caregivers and partners, and are in turn able to support others.

I, too, claim that mutuality and interdependence are basic and necessary forms of human life, but that they are not biologically linked to one gender or another. The practice of interconnectedness is not a universal female responsibility in all societies. Primary reliance on females as caregivers in the home became widespread in modern, industrializing societies, where work and home are separate geographically and conceptually (de Beauvoir, 1949/1989). In developed countries, with most women part of the work force today, the private/public separation of many women's lives in the 19th and early 20th century has to be and is being rethought. These historic trends have contributed to the widespread discussions of women's changing roles in contemporary life, and have provided some of the impetus for the development of a new psychology of women.

Theoretical Connections

In a recent study, the Danish anthropologist Hasse (1998) relied on participatory field work to study women entering physics careers. She was struck by the low number of women who chose academic careers, even though they made up 23% of the students in this field. Hasse shows that although women do well on examinations, they drop from university and research programs in physics in large numbers. This situation is not restricted to Danish women; it is characteristic of many universities in Western industrialized countries (Barinaga, 1994).

There are many answers that have been proposed to ameliorate this situation: They include creating a new paradigm for female socialization, the sharing of childcare responsibilities, and the elimination of sexist teaching techniques. Hasse does not ignore any of these, but she believes that additional answers might emerge from a participatory mode of study. She enrolled as a first-year student at the Nids Bohr Institute of Physics at the University of Copenhagen. Her study is informed by activity theory as well as by feminist writings, both of which include ethnographic modes of research. She found some interesting gender differences through her participatory method: one of these is the role of play in physics learning. Males engage in playful exploration of concepts through invented activities (like jumping up and down in an elevator to test gravitational forces). While these playful activities were at times disruptive to other, primarily female, students focusing on their work, most instructors did little to interfere.

Occasionally, these modes of exploration led to new understandings, and they created particular kinds of connections between the male students engaged in play.

There is an interesting link between Hasse's findings and Maccoby's interpretation of childhood interactional patterns of males and females. As described earlier, Maccoby suggests that the play activities of boys are more physical and boisterous than that of girls. Boys also rely on jokes and suspenseful stories in entertaining each other. Hasse found that male physics students engaged in more joking than did the women and that for some of them, their liking of physics was fueled by space narratives, and science-fiction stories. The women did not share these interests. Hasse frames her findings by using activity theory. She conceptualizes the gender differences as related to different objects within the activity system -one of these is *education*: solving problems, passing exams, studying textbooks. There is also a related but somewhat different object: *science preparation*, which is fed by these more innovative activities. "In play, male students often transform the purpose and goal of the textbook exercises by making up their own experiments" (Hasse, 1998, p. 12).

The approach used by Hasse and by many other cultural-historical researchers places social and individual practices as central to their work. According to Charles Taylor human "social reality is composed of social practices, which provide the intersubjective medium for mind" (Cole, 1996, p. 138). In a similar vein, the feminist philosopher of science, Harding (1996), comments on historically changing differences in ways of knowing by stressing the importance of activities and practices. There are differences in theories of knowledge that arise from the substantive cultural and historical differences in people's lives. To the extent that women and men are assigned different activities and engage in different practices, these will lead to alternative resources and limitations for developing knowledge. Harding (1996) argues that

since our theories of knowledge tend to vary according to the kinds of knowledge projects in which we engage, it should not surprise us that parenting, juggling work and family obligations, or experiencing family violence or little opportunity for play or dialogue should affect the theories of knowledge of those who have such experiences. (p. 448)

Harding's comments also highlight the issue of "positionality." None of us carry a fixed "essence" or individual identity. We develop amid multiple relationships, practices and responsibilities, changing within and across historical times, and individual life trajectories. We are not "simply individuals, but differentially placed members of an unequal social order" (Maher & Tetreault, 1996, p. 163). Positionality also refers to race, class, sexual orientation, geographic location, age and work, all impacting on gender identities.

A central metaphor in the writings of the women I have quoted is *voice*; they emphasize the way humans construct and reconstruct themselves through language. Tarole (1996) quotes women they interviewed who mentioned "speaking up," "speaking out," "being silenced," and "really talking" (p. 275). As these writers moved from emphasis on individuals to communities, their focus shifted from voice to dialogue. It is through discourse and dialogue that meaning is interpreted, negotiated and contested.

For some, speaking or not speaking is "wrapped up in identity and racism," a description Goldberger (1996a, p. 344) quotes from a highly educated Native American woman. The empowerment of those silenced by violence and marginality raises the issues of language, social practices, and the relevance of Vygotsky and Bakhtin in these analyses. In *Mind as Action*, Wertsch (1998) quotes Bakhtin:

To *be* means to be for the other, and through him, [or her] for oneself. Man [and I will add woman] has no internal sovereign territory, [s]he is all and always on the boundary, looking in the *eyes of the other and through the eyes of the other* ...I cannot do without the other; I cannot become myself without the other; I must find myself in the other, finding the other in me (in mutual reflection and perception). (p. 116)

These words resonate with feminist accounts of "self-in-relation." Debold, Tolman, and Brown (1996) write of identity, or what they refer to as the "selfing" process and emphasize the importance of language (and of Vygotsky's and Bakhtin's analyses) "I... is developed within and by the complex social interaction and experience of language" (p. 92). Thus, in examining the

commonalities across feminist and cultural-historical theory, four shared themes can be identified: (a) the social sources of development; (b) the importance of culturally-patterned practices and power relations; (c) issues of language and voice; and (d) the mutually constituting roles of self and community. If these similarities already exist, how can these two approaches further broaden or complement each other? I suggest by a more two-sided exchange of ideas because, at present, there is little acknowledgment and appropriation from the writings of feminists scholars on the part of cultural-historical theorists.

As discussed before, I ascribe some of this asymmetry to differences in focus. Starting with Vygotsky, our concerns have been primarily with language, literacy, cognition and schooling. To date, we have made limited progress in developing a cultural-historical synthesis between cognition and motivation. The importance of human interdependence in Vygotskian theory implies both cognitive and emotional contexts for development. Similarly, in Cole's (1996) discussion of "prolepsis," which refers to parents' projection of a probable future for their child, emotion and cognition cannot be separated. Parents reveal some of their feelings and hopes for their newborns in the way in which their expectations are shaped by their own pasts, and by their cultural and linguistic practices. These expectations, in turn affect powerfully their children's development. Such an analysis expands our theories beyond purely social-cognitive emphases. Litowitz (1993) directly addresses motivation from a Vygotskian perspective in her paper "Deconstruction in the Zone of Proximal Development." She suggests that the standard accounts of learning in the zone of proximal development omit two important factors: identification and resistance. The former refers to the child's desire to be like the adult, "or to be the one the adult wants him [or her] to be" (p. 187). Litowitz uses a Freudian characterization of identification, which implies innate sources of motivation. I think identification can be rethought in relational terms. If we recognize that human survival requires effective interdependence, particularly in infancy, then trajectories of mutuality can be constructed without relying on instinct. The needs to be given to and to depend on, are crucial for the infant. Dependency and helplessness in infancy are necessary. They call forth care giving behavior by adults and older siblings. Moreover, young children are also capable of mutuality for and caring about parents and other children, if they participate in healthy, reciprocal relationships. The psychologist Jordan (1991) writes of early empathic responsiveness on the part of the infant.

A beginning of an analysis of motivation from a cultural-historical perspective may be a developmental one with an emphasis on care giving practices. These, when seen from a cultural perspective, reveal interesting variations. In some societies, they are the primary responsibility of parents (or their carefully chosen substitutes), while in other societies, both adults as well as female and male siblings are engaged in child care. Identification in the latter settings is linked to multiple interactions across generations. In these contexts the child's desire and processes of identification includes a number of people, or aspects of them.

Issues of motivation are raised by Litowitz through the window of the identification process. She makes us ask: Why do we cooperate, co-construct or resist? When she quotes from the concluding passages of Vygotsky's (1934/1986) *Thought and Language*, she reminds us that Vygotsky recognized the importance of motives:

To understand another's speech, it is not sufficient to understand his [or her] words -we must understand his thought. But even that is not enough -we must also know its motivation. No psychological analysis of an utterance is complete until that plane is reached. (p. 253)

Vygotsky was never able to expand this area of his thinking, and his writings on emotion are not as fully developed as his work on cognition. For example, Vygotsky's (1932/1987) lecture entitled "Emotions and their Development in Childhood" is primarily an historical analysis of extant theories. Work by Vygotsky's followers built on other, more fully developed themes in his writings. I believe that by relying upon feminist works, we can make progress in constructing a fuller cultural-historical theory in which a synthesis between thought and emotion is possible.

In addition to theory, methodology is another area where feminist and cultural-historical scholars share similar approaches. Researchers in both groups use interviews, observational and ethnographic studies, and occasionally, longitudinal studies revealing changes in the behavior of a cohort of participants. Some examples of long-term research are the work by Cole (1997, 1998) on the sustainability of innovative programs, and the studies of Finnish researchers on collaborative patterns at different work sites (Engestrom, 1990, 1995, 1998; Saari, 1996, 1998). Among feminists, Gilligan has conducted longitudinal studies of preadolescents and teenagers, which yielded the challenging findings I have described earlier.

Studies of Collaboration

Longitudinal studies usually require collaboration. Sociocultural theory provides a basis for examining interdependence in partnership. It specifies some of the connections between co-construction and appropriation, that is, the incorporation of jointly constructed ideas into one's own being. Through *mutual appropriation* partners expand their skills, knowledge, and vision. A recent, beautiful, example of such mutual appropriation was demonstrated by the American public television series, *yo-yo Ma Inspired by Bath* (Rhombus Media, 1998). The series presented a sequence of multiple collaborations between Mr. Ma and choreographers, a film-maker, a Kabuki dancer, a garden designer and others. Ma and his partners brought the 18th century music of Bach into our own lives, and added many unexpected layers of cognizance to it.

Only through collaboration can we tackle big questions like the effects of violence, drug abuse, and environmental challenges. These concerns can not be solved successfully by individuals working alone. They require the coordinated efforts of groups of researchers who share a common vision. Again, it is in such endeavors, through mutual appropriation, that participants expand their skills, knowledge and vision. But while the practice of collaboration has become widespread, the processes of collaboration have not yet been widely studied. Researchers in the cultural-historical tradition have addressed intellectual and work collaboration, but have not developed a shared approach. This lack of a shared approach reflects the complexity of this diverse research community, in which different groups have chosen differing types of collaboration, and somewhat varying conceptual approaches.

Scribner's research with her coworkers in New York focused on knowledge acquisition at the workplace (e.g., Scribner, DiBello, Kindred, & Zazanis, 1992). The tradition she established continues to this day. Glick (1992), DiBello (1996), and Kindred (1998) at the City University of New York study the cognitive practices of workers, particularly during periods of rapid technological change. Research in Finland, at the Center for Activity Theory and Developmental Work Research (Engestrom, 1995; Karkkainen, 1996; Miettinen, 1995) also concentrates on working adults. They study medical, legal, educational, and scientific research situations. Their work is based on Engestrom's expansion of activity theory (Engestrom, 1996). It focuses on organizational changes, disturbances and conflicts, and the restructuring of joint processes. A number of Finnish researchers have examined innovations, and the way that workers at universities and technological sites reorganize their activity when new artifacts are introduced into their communities of practice.

A third important strand in research on collaboration is the "social practice theory" of Lave and Wenger (1991). Starting with Lave's (1988) studies of everyday cognition and apprenticeship learning in Liberia, and subsequently among midwives, butchers, and alcoholics, they developed an influential theory on changing participation patterns among communities of learners. In a related vein, Rogoff (1990) and her collaborators (Rogoff, Matusov, & White, 1996) have examined apprenticeships and learners' participation in diverse cultural contexts. While Lave and Wenger focused on adults, Rogoff's research teams included children's learning activities, both in formal and informal settings.

Two collaborative programs in the southwestern United States further illustrate cultural-historical approaches to joint activities in classroom and in afterschool activities. One of these is Moll and Whitmore's (1993) work in bilingual schools in which the teachers assume multiple roles (including those of guides, participants and facilitators), and the students have considerable control over reading and writing topics. Another program focusing on afterschool activities, known as Fifth Dimension, was developed by Cole and Griffin, and has been further refined by Viquez, Gallegos, and their coworkers throughout California and in other sites in the USA and

abroad. It brings together children and adolescents, college students and university researchers in varied community institutions.

It relies upon computer technology, collaborative learning, play, and imagination "within the framework of a shared and voluntarily accepted system of impersonal rules" (Nicolopoulou & Cole, 1993, p. 293).

In this program. Cole (1996, chap. 10) and his colleagues extended Vygotskian analyses of learning beyond the dyadic and small-group level to include different institutional sites and activities. The success of Fifth Dimension is based, in part, on the character of the collaboration, which includes a fluidity across ages and areas of expertise (John-Steiner & Mahn, 1996).

The practice of joint activities varies among these different groups, although they share a common commitment to the exploration of a culture of collaborative learning (Nicolopoulou & Cole, 1993). Its development, strengths and weaknesses in different settings, and the ways in which groups cope with discord, "knots," and conflict resolution are quite specific to the varying sites.

At the University of New Mexico my collaborators and I have been studying creative dyads as well as large collaborative groups. Our research team is composed of Michele Minnis, Teresa Meehan, Holbrook Mahn, and Robert Weber, among others. The aspects of joint activities we focus on include working methods, roles, value tensions, and conflict resolution. Our work first started with the study of dyads, particularly creative partners (John-Steiner, 1999). This interest dates back to the late 1980s, and grew out of my recognition, while writing *Notebooks of the Mind* (John-Steiner, 1997), that the traditional image of the solitary creator is inadequate when depicting the creative process. My own insights corresponded to major shifts occurring in cognitive studies toward social and distributed models of thought (Resnick, Levine, & Teasley, 1991). These shifts also included creativity researchers, such as Amabile (1990); Csikszentmihalyi (1996); and Feldman, Csikszentmihalyi, and Gardner (1994), who moved from purely person-centered approaches to include the dynamics and social aspects of creative cognition.

While examining the creative complementarity between collaborators such as Picasso and Braque, the physicists Feynman and Dyson, Einstein and his mathematician friend and collaborator Grossmann, and the choreographers: Graham and Hawkins, I came to realize that my cultural-historical framework, while rich in cognitive concepts, was not inclusive enough to describe motivations of creative work (John-Steiner, 1998).

The research revealed that the long, hard effort to produce something new requires trust in oneself. Such trust is nourished and sustained in effective working and living partnerships. When scientists or artists reexamine old theories that conflict with new discoveries, insights, and perspectives, they find thinking together particularly productive. Thinking and working collaboratively is especially promising in constructing a new framework.

This recognition led my collaborators and myself to expand our studies to include large, interdisciplinary collaboratives. Our definition of collaboration is as follows:

The participants in a collaboration represent complementary domains of expertise. As collaborators, they not only plan, decide and act jointly, they also think together, combining independent conceptual schemes to create original frameworks. . .In an effective working collaboration, there is a commitment to share resources, power, and talent; no single viewpoint predominates, although roles may differ among the participants. There is an effort to establish authority for decisions and actions within the group, and work products reflect a blend of all participants' contributions. We recognize that collaborative groups differ in their conformance to this profile and that any single group may exhibit some of the features only episodically or only after long association. (John-Steiner, Minnis, & Weber, in press)

In examining collaborative co-construction, we built on Vygotsky's sociogenetic notions. But when we tried to represent the rational dynamics of co-construction, and issues of collaborative values, we found our language was limited. We are relying on our interviews and on the rapidly growing literature on collaboration (Johnston, 1997) to help us to describe the emotional issues of trust, uncertainty, rupture, distance and reconnection.

Intense, integrative collaborations between men and women require a long period before equality is achieved. The commitment of time and emotional effort to achieve such a goal is more common in dyadic collaboration than in large groups. Both in the biographical literature (Chadwick & de Courtivron, 1993) and in our own interviews, we find extensive depictions of collaboration both among partners who share life and work, as Marie and Pierre Curie did, and others who work closely together without sharing their intimate lives (John-Steiner, 1999).

In attempting to explore both the cognitive and emotional aspects of intense collaboration in groups, I found women's accounts more detailed than that which has been written by and about men. They confront the complex dynamics of co-construction, competition, intellectual ownership, gender socialization, and joint authorship with daunting honesty (John-Steiner, 1999).

Some of these themes appeared in my interviews with the four authors of *Women's Ways of Knowing* and in their introduction to the anniversary edition of their influential book (Belenky, Clinchy, Goldberger, & Tarule, 1997). In one conversation Belenky and Clinchy (personal communication, July 10, 1996) told me:

At the beginning we each talked about what we longed to do in a very open way.
...and very quickly we discovered that we were close enough that we could pull something together.

The first resolution of the tension between individual interests and common commitments came as a breakthrough insight: "[Women] learn in relationships, by juggling life demands, by dealing with crises in families and communities" (Belenky et al., 1997, p. xi). Integrative collaborators, such as these authors, aim at a shared vision. They write in their introduction how they strove to achieve a single voice:

[This was] an exercise that was difficult but in the end successful, we thought.
Throughout the writing, we kept in mind the metaphor of a chorus of voices that was to sing the story we wanted to tell; there were to be no solos. (Goldberger, 1996c, p. xi)

They forged the concept of "we" because of the high level of trust they developed during the decade of their shared endeavor.

In our own data we are finding some interesting gender differences. One of the instruments we use is a Q-sort, a set of 50 statements that the participants are asked to sort into a bell-shaped distribution. At one end of the sort, they place statements most characteristic of their collaboration and at the other end, they place those least characteristic of it. While we administer the sort, the participants comment on their evaluation of the meaning and relevance of a particular item. In analyzing 62 sorts, we found that the most widely agreed upon item was: "In a good collaborative environment, one's ideas can be made explicit through questioning and dialogue." There were no male/ female differences related to this item. But the statement: "Among my collaborators there is a sense of mission to establish a community in which we can participate" was rated significantly higher by women than by men. It is also an item that the authors of *Women's Ways of Knowing* ranked as very true of their partnership.

A somewhat different perspective on collaboration is offered by the authors of *Organizing Genius*, by Biederman and Bennis (1997). They write about predominantly-male "Great Groups," of ???ranging from the Manhattan Project and the Disney studios to the Palo Alto Research Center (Xerox PARC). They describe these participants as "thinkers, playful and verging in their enthusiasm on adolescent subculture" (p. 14). The contrast between the male groups as described by Biederman and Bennis and the way female groups describe themselves is challenging. The members of the Stone Center and the authors of *Women's Ways of Knowing* emphasize their commitment to build a community in which they argue, play, and bond. The very fact that the women describe themselves, while the men are described by others is of interest. Biederman and Bennis attempt to explain the absence of women from these influential groups as follows: "Although sexism surely kept women out of some Great Groups, there may be something in the group dynamic itself that has discouraged participation by women" (p. 15). Men who participate in these groups possess great self-confidence already at the time they first join. Women are less sure of themselves at the start of their collaborative projects, but they are quite successful in bolstering each other's beliefs in themselves.

These differences in collaborative interaction patterns are quite consistent with Maccoby's (1990) analyses of gender and relationships referred to earlier. She writes of research findings which suggest that women are more successful in tasks that require discussion and negotiation, and men are more assertive and argumentative in groups. In the course of the men's intense engagement many ideas are generated. These trends are further confirmed by Hasse's findings quoted before in which she emphasizes the playful, even manic, quality of male physics students working on challenging problems.

Maccoby's position is that gender-linked interactional patterns reflect socialization practices. But these are not fixed patterns; they change as situational demands shift and as child-rearing practices change. These changes may be responsible for the results in recent meta-analyses (Hyde & McKinley, 1997) which reveal a decrease in male-female differences in the cognitive domain. Thus both contextual and historical factors affect the way in which men and women develop, acquire knowledge, and relate to each other.

Long-term collaboration produces its own dynamics. Conflicts can arise in a group, regardless of its gender composition, and as Engestrom (1994; Engestrom, Engestrom, & Vahaaho, this volume) suggests, conflicts, or "knots" can be quite productive in moving groups beyond the practiced and the known. But some disagreements can be painful. Under the tension of a deadline, or the pain of unequal status in the broader world of material rewards and professional prestige, fault lines may emerge. Hirsh and Keller (1990) co edited a book entitled *Conflicts in Feminism*. Rather than blunt their differing opinions, they wrote two sets of conclusions in parallel columns at the end of the book. A somewhat different approach was taken by Jill Tarule and her coauthors. She recalled in the 1997 preface of WWK:

We had wonderful insights, and agonizing disagreements, some still unresolved. As the theory began to emerge from the mist, we each held a different relationship to it, and struggled over issues of ownership, the individual versus the group identity. (p. xvi)

Thus, it is in collaborative endeavors, that some of the most poignant consequences of human alienation are manifested. We struggle to establish egalitarian relationships against the backdrop of an identity achieved through competition, but as we develop shared objectives and a joint vision, we learn to build on our partners' strengths and explore our complementarity. As yet, these courageous efforts are lacking a comprehensive theoretical framework.

Conclusions

In the beginning of this chapter, I suggested that traditional psychological and economic models of human agents as lone, competitive actors are losing influence. Increasingly, interdependence between persons is recognized as central to individual and societal functioning. Both cultural-historical and feminist theorists place the social sources of development, or "self-in-relation" as central within their framework. There are shared themes and complementarity, as well as different emphases across these two groups of theorists. Feminists' concerns with developmental and relational dynamics are not explicitly shared by scholars studying mind, culture and activity. However, in looking for areas of mutuality, we broaden our ways of knowing, and, in the process, may construct a new synthesis between thought and motive, and cognition and emotion.

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