13 Creativity, Collaboration, and Computers

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In the preface to their anthology, *Landmark Essays on Writing Across the Curriculum*, Charles Bazerman and David Russell (1994) articulate the original reasons for studying writing and rhetoric in the disciplines: "How do students learn (or fail to learn) the specific kinds of writing they will need in their future activities, professional and otherwise? And how can pedagogical arrangements improve that learning?" (xv). At the end of a writing-across-the-curriculum workshop at the University of Kentucky, two professors—one in interior design and one in English—modified these questions to find answers to similar cross-disciplinary concerns: (1) If undergraduates across disciplines are in continual dialogue about the creative processes they use to do their work (written and not written), will they learn about and enhance these processes?; (2) What pedagogical techniques can be used to make this dialogue a significant learning experience?; and (3) How can the use of electronic mail facilitate this exchange?

In order to answer these questions, students in a creative design foundations class and a freshman composition class were paired for e-mail conversations. After completing the same assignments, students e-mailed one another about the creative processes used to do their work and their reactions to the experience.

This creative partnering worked well because of the expressive and inventive space of e-mail as well as its interdisciplinary pairing. E-mail facilitated student exposure to creativity because e-mail can immediately provide someone else's perspective. Mark Zamierowski (1994) notes in *The Virtual Voice of Network Culture* that the voice generated through electronic media is a virtual voice which is

> a matter of linkages and assemblages, arrangements that may not last beyond the space of their cooperation. A virtual voice is inherently a disputable fact. It should never be, but should always be a becoming-voice. It

> should never be thought of as existing anywhere but in-between, in the
> very reciprocating structure of discourse itself. As such, a virtual voice
> cannot be the sole possession of anyone, nor the dispensation of anything.
> In this respect, it is nothing more than a desire to express and invent, a
> desire that simply is expression and invention itself. (291)

The professors, Margaret Portillo in interior design and Gail Cummins in rhetoric and composition, and their students in both interior design and composition learned a great deal about the expression and invention of creativity through their e-mail partnering, as well as with its interdisciplinary pairing and the common work not in the content of the specific disciplines. In addition, the project concluded that raising to consciousness the creative processes necessary to complete disciplinary work via e-mail is a pedagogy worth incorporating into every class.

Creativity Partnering

After working together at the University of Kentucky Writing Across the Curriculum Workshop, marveling at the similarity and difference of pedagogy, research, and creative process, we were inspired and encouraged to find a similar conversational forum for our students. In philosophical agreement about the capacity to create and our students' ability to develop this potential, we two professors shared disciplinary-specific theory to ground our study. Understanding creativity in a developmental context is central to Portillo's work (Dohr and Portillo 1989, 1991; Portillo and Dohr 1989). In addition, Portillo had just discovered Elizabeth Goldsmith-Conley's (1992) dissertation and was excited by her rhetorical approach to teaching literature and painting. Goldsmith-Conley presents a case for raising critical thinking across disciplines through questioning processes. Cummins's dissertation focused on how writers question their relationships between themselves, texts, and audiences (1994). Since the developing nature of creative processes—in both interior design and composition— are central to Portillo and Cummins, the developmental aspects of creativity and voice guided our joint study.

Together, we developed a series of five creativity assignments for an introductory design class and an English course. We attempted to raise creativity to consciousness by exposing students to persons, processes, products, and places. This 4Ps framework for understanding creativity, coupled with a rhetoric and compositional approach, guided the pedagogy in both classes. Engaging students in active learning and self-discovery focused this engagement on student creativity.

After completing assignments, students considered the following questions: (1) How do I do an assignment; what creative processes do I use? (2) What works in creating an assignment? and (3) What doesn't work in creating an

assignment? The intent was to make the students aware of creativity and their own creative processes to better realize their potential.

E-mail was the chosen interdisciplinary platform because it readily maintains lively discussion across classes. Marilyn Cooper and Cynthia Selfe (1990) describe technological sites as

> reduced risk space, [where] students can discover or evolve amongst themselves different patterns of power and linguistic exchange to facilitate these discussions, patterns which may run directly counter to those that have become habitual in our classrooms. (867)

Using e-mail, therefore, we created an interdisciplinary Creativity Partnering Project, a student forum for discussion of creativity.

Students from the two classes were paired and, over the course of the semester, electronically mailed responses to their cross-disciplinary partners. The Creativity Partnering Project began with an assignment that emphasized creativity through life experience. The purpose was to create and write about symbols that represented a significant learning and/or creating event for each year of the student's life. For inspiration, the students were shown a photograph of a Lakota Sioux Stepping Stone Calendar that illustrated seventy-two years in the life of a tribal warrior (1801–1873) through symbols.

The ensuing assignments emphasized creativity in art and poetry: students viewed a film documentary about Georgia O'Keeffe and attended a poetry reading and an informal question-and-answer session by poet Rosemary Klein. The next assignment emphasized the creative process involved in transforming nine non-objective line drawings into recognizable images that were then appropriately titled. The students completed the line drawings in class and then shared their responses with each other. The final experience involved visiting an exhibit of electronic media by Nam June Paik and a photography exhibit by James Baker Hall, both at the University of Kentucky Art Museum.

While issues of creativity could be explored individually within interior design and English, the purpose of collaborating was to underscore commonalities between two fields that emphasize process—a process that is enhanced through creativity. After completing the project, we returned again to the student writings to look for patterns in their responses.

On a first reading, the students' e-mail responses sorted into 3 categories: (1) those who responded emotionally, recording their subjective impressions, (2) those who responded informationally, presenting literal facts, and (3) those who responded contextually, looking beyond their own experience to answer in a larger context. These responses suggested different styles and developmental levels of processing information. Lester Faigley (1986) describes three ways rhetoricians pattern information about writers and writing: "an expressive view including the work of 'authentic voice'. . . , a cognitive view including the

research of those who analyze the composing processes . . .," and the social view which "contends that processes of writing are social in character instead of originating within individual writers" (528). The student responses generally sorted into Faigley's categories.

Similarly, a multidimensional stance is found in theoretical descriptions of the creative person. That is, the study of the creative person has encompassed expressive and cognitive views, typically examined in terms of personality and motivational traits, cognitive characteristics, and biographical experiences (Davis 1975; Rothenberg and Hausman, 1976). However, the study of creativity also more recently invited a social view, exploring process, product, and place (Stein 1968; Tardif and Sternberg, 1988). These facets are, of course, interrelated. Paul Torrance (1988) reflects,

> I chose a process definition of creativity for research purposes. I thought that if I chose process as a focus, I could then ask what kind of person one must be to engage in the process successfully, what kinds of environments facilitate it, and what kinds of products will result from successful operations of the processes. (47)

The inherent complexity of creativity defies reaching a universal definition easily; however, people, when asked to define creativity, seem to be able to intuitively identify key aspects of the creative person. Robert Sternberg (1988) probably has done the most work studying how people conceptualize creativity, focusing on "what kind of person one must be to engage in the process successfully." Sternberg's studies indicate that people maintain fairly consistent conceptions of creativity (called "implicit theories") and employ their theories to evaluate or judge others.

We wondered if our students held implicit theories that guided their articulations of creativity. Would students consider creativity as person, process, product, and place? Would they see relationship among these components? Would an interdisciplinary lens, conducted through e-mail, help make this clear?

Again, the interdisciplinary theory guiding this study enhanced the questions and answers it generated—both by professors and students. For example, Portillo speculated that like the student coming to the study of color expecting only to find hue and then discovering nuances of value and chroma, the design student had implicit theories about creativity that could be brought to consciousness through interdisciplinary dialogue. Cummins wondered if the processes of student writers would change if, as Toni Morrison would say, writers could name and claim them.

When analyzed, many of the students' discussions of their creativity processes related to personality traits and characteristics. The traits could be discerned in part because of the comparisons provided by the two disciplines and also because of the informality and open-ended nature of discussion generated

by e-mail. Additionally, by looking at someone else's creative process—another student and a "master" artist or poet—students were able to dissect their own method. For example, one student said,

> [The painter Georgia] O'Keeffe had a different style of doing things than I do. Georgia was an abstract artist. She liked to paint things a little out of the norms of society. I prefer things more "normal," not because it is normal, but I can associate with these things easier. . . . Coming up with something no one else has ever tried is not only a brave thing to do but a difficult thing as well.

This inherent tension between the creative self (person) and society (place) relates to the affective side of creativity—the struggle, determination, tenacity inherent in delivering new ideas regardless of the content area—which slides into one's "aesthetic taste and imagination" (process). Aesthetic taste and imagination fuel finding a good problem and realizing its possibilities (product).

Another student discussed his affective side of creativity:

> Georgia O'Keeffe's creative process is similar to mine in that she sees what she is going to create before she brings it to life. Words come to me just as shapes fill her head. I also sometimes have trouble fitting all I want to say into one paper, just as she struggles to put all of her thoughts on a canvas. I don't, however, require the amount of independence and isolation she does to create. I like to have someone close to critique my work.

The creative process of writing does require varying combinations of writer (person), text (product), process, and context (place). One given is that all four elements must co-exist for communication to occur, as exhibited by the previous student's remark. As James Moffett (1965) says, "There is no speech without a speaker in some relation to a spoken-to and a spoken-about" (244). How a creator combines and varies these relationships is what makes the creative process individualistic.

The combination of person, product, and place is discernible when creators discuss their revision practices. When artists and writers revise, they are in constant relationship with the audiences who will see and hear their texts. Cummins has argued in her article "Coming to Voice," "The complicated juggling of relationships—between author and text, author and language, author and other authors—forces us into roles we may not be prepared to take, roles we may not be able to make conscious" (1994, 50). Studying the revision practices of successful artists and writers, students can begin to relate these processes to their own. One creativity partner said:

> O'Keeffe painted 8 variations of the evening star and 3 variations of the Grand Canyon while living in Texas, each one focusing on different perspectives. This, to me, is very similar to a writer's editing and revising methods.

It is essential, therefore, to help students make explicit theories that guide their creative work. A starting point is to tease out the differences between intuitive and rational approaches to creativity, and interdisciplinary conversation is a good way to do this. Responding to Georgia O'Keeffe's painting, some students in the creative partner project found O'Keeffe's process intuitive; others recognized a more rational method. The advocates for intuition related to O'Keeffe's description of shapes flooding into her mind, shapes whose origin she could not place or determine. Students appeared in awe of, even envious of, her creative muse:

> O'Keeffe can begin with a blank canvas and produce a masterpiece while I have to spend hours sketching and starting over.

> O'Keeffe never started a project until she had thoroughly thought out her ideas and processes she intended to carry out.

Regardless of their stance on the accessibility of the creative process, many students connected the creative person with his or her process, product, and place. Calvin Taylor (1988) acknowledges that "To many in the arts, including poets and creative writers, the highest degree of the creative process is almost a combined total-human-being response, involving all aspects of such a person's response repertoire" (99). The students implicitly recognized the multiple forces defining creativity. One student remarked:

> What [Rosemary Klein] said about her life experiences appealed to me because I like to think about how my life and childhood have shaped my creativity . . . I think her [poetry] was a part of her life.

In their writings and dialogue with each other, the students evidenced implicit theories that distinguished among "spontaneous," "forced," and "extended" creativity. That is, they understood that creativity could be manifested as a reverie, occur within constraints, or show elaboration of an idea. The implicit theories of students paralleled extant, sometimes competing, theories of creativity.

The students' implicit theories also echoed the nature versus nurture polemic that exists in the realm of creativity (MacKinnon 1962). Undeniably, creative genius exists. Different levels of creativity exist. But it is the responsibility of the educator to shift the emphasis from "Is one creative?" to "How is one creative?"

In *The Making of Meaning: Metaphors, Models, and Maxims for Writing Teachers*, Ann Berthoff (1981) says

> I learned to come to class not thinking of a territory to be covered [with a map] but with a compass . . . making the raising of consciousness about the making of meaning [my] chief strategy in teaching . . . and in developing a "pedagogy of knowing" (15).

This project made creative processes conscious—both in the professors' pedagogy and research and in the work of their students. Through cross-disciplinary collaboration, the professors and students found new perspectives on their own fields. For example, watching Portillo hold and critique a student's design of a scaled paper furniture component, Cummins was reminded of how easy it is to get away from a hands-on-approach to teaching. By listening and talking to a poet and artists, students learned about and enhanced their creative processes. They considered how their own processes and the processes of those in other disciplines guide their creativity:

> I thought that [Rosemary Klein] was an extremely interesting person. Everyone in my class [interior design] seemed to enjoy her and her poetry. I am sure that your class perceived her in a different way. I guess when you're in an English class, you respond differently to things. I know we were interested in her creative process, while your class questions seemed to center around how Klein knows what art is.

> It was obvious that [Klein] is very moved by her work, and that had quite an effect on the audience. It was a reminder that creativity can sometimes be a risky, brave thing to do. It must take a lot [of] faith in what you are doing to stand up there and do that. I hope that, in my career, when I need to present my work to people, that I can do it as well as she did.

> I think it is very helpful to constantly be exposed to the creative process of others, while you're still learning yours.

Conclusions and Implications

We asked (1) If undergraduates across the disciplines are in continual dialogue about the creative processes they use to do their work (written and not written), will they learn about and enhance these processes? (2) What pedagogical techniques can be used to make this a significant learning experience? and (3) How can the use of e-mail facilitate this exchange?

The Creativity Partnering Project began with self-reflection through symbol and word and moved to consider creativity within the context of art and poetry. In response to these assignments, the students discussed creativity passionately. Their implicit theories of creativity were rich and multidimensional, yet personality of the creator appeared central to their creativity constructs. Again and again, they related personality traits to process, product, and place. It seems that exposure to various highly creative persons encourages students to experiment with creative processes. Further, there appeared to be more similarities than differences in how the students viewed creativity across disciplines.

This entree into fostering a conscious creativeness through shared experiences and dialogue raised several issues that deserve further study. How might

implicit theories of creativity change through pedagogic intervention? Subsequent work could examine critical junctures in the creative process. This knowledge would help identify ways to restructure the learning process to facilitate creativity.

Further, this collaborative experience between disciplines could be both further refined and expanded. More focused conversations could occur with an electronic newsgroup or chatline. Partnerships could be extended to other disciplines. Creativity that occurs within formal constraints, for example, could be explored with disciplines such as music, kinesiology, architecture, or communications. Even within an interior design or English program, conversation about creativity could be encouraged between class levels.

How did the e-mail exchange fit into the context of the first-year design and composition courses? How did it relate to the overall course objectives? Most important, this exchange on creativity took students outside their disciplinary boundaries to gain new knowledge and a new way of learning. Students saw the possibilities of innovative, blue-sky thinking by learning from individuals who were not only highly creative but also greatly committed to their work. E-mail made their insights immediate. They learned from each other and found that even as "novices" enrolled in foundations courses, their responses to and thoughts on creativity were listened to and valued.

Additionally, this exchange revealed that mastery of knowledge engages process as well as content. For example, many course objectives emphasize subject matter content, yet another important objective is to introduce and refine processes required for conceptualizing and developing this content. A shift in focus to process and the insights gained about the self and the processes of others can make the students more cognizant learners, better able to realize their creative potential.

How did e-mail support this project? This study contends that using e-mail in an interdisciplinary conversation about how we know our creative process was a worthwhile pedagogy. Reflecting upon people, product, process, and place electronically created what Christina Haas (1996) calls, in *Writing Technology: Studies on the Materiality of Literacy*, "[an] embodied practice . . . a practice based in culture, in mind, and in body . . .—a pedagogy we would all benefit from practicing" (xv).

Note

The e-mail exchange was done using a POP server that the students were able to access at a number of computer labs across the University of Kentucky campus. The model was HP 9000 K200 with the following hardware: 128 megabytes of RAM; 6 Gigabytes of hard disk space; software included Qualcomm's QPopper 2.13; PopPassd; Sendmail 8.7.3. The network employs FDDI and Ethernet connections.

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