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Creative Teachers

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Abstract

Good teaching is creative teaching, yet there is little research focusing on creative teachers themselves. In this article we report a synthesis of 13 qualitative case studies and two quantitative studies of teachers who demonstrated everyday or local creativity in their work. Themes and categories were identified through constant comparison and inter-relationships among themes were explored. Four themes are described: personal characteristics, community, process, and outcomes. Teachers' creative process emerged from the interaction between their personal characteristics, including personal intelligences, motivation, and values, and the communities in which they worked and lived. This process resulted in a wide variety of outcomes. The findings suggest that cooperation between teachers and administrators is essential for teachers to succeed in creating positive change.

Keywords: creative teachers; creative outcomes; creative processes; community; everyday creativity; personal characteristics; teaching practice; case study research; constructivism.

Ambrose (2005) noted "there are no absolutely noncreative or perfectly creative teachers" (p. 285) and it is difficult to imagine successful teaching that does not depend on teachers' creativity. Teachers engage in everyday creativity when they plan and improvise lessons to meet the needs, interests, and abilities of specific students while conforming to the formal curriculum and available resources (Rejskind, 2000; Richards, 2007), and when they juggle different interpersonal, instructional, and managerial tasks and problems, handling challenges on the spot with little or no warning (Ambrose, 2005). Yet the literature on creativity in gifted and regular education is primarily concerned with creativity in children and youth, and teachers' role in supporting them. While some research has examined creative pedagogy (e.g. Craft, Jeffrey, & Leibling, 2001; Sawyer, 2004) few studies have examined creative teachers themselves. That is the focus of this article: creative teachers' characteristics, the creative processes they engage in, and the outcomes of their creativity.

Most research on creative individuals focuses on eminent or "Big C" creativity in which there is a product which is new and meaningful to society or to a significant identifiable segment of society (Richards, 2007). Recently, more consideration has been given to everyday (Richards, 2007), ordinary (Bateson, 1999), or "little c" creativity (Craft, 2001, 2002). Ripple (1989) defined ordinary creativity as "creativity [which] results from ordinary people thinking in identifiably unique ways when they meet everyday problems in real-life situations" (p. 189). Most teachers demonstrate everyday creativity (Rejskind, 2000). Worth (2001, as cited in Craft, 2002) also described a level of "localized creators" who have a reputation for creative work within a local context but do not reach the level of eminent creativity. This paper focuses on local and everyday creativity. For teachers, this most often means combining and integrating different educational theories, stances, and models about teaching, learning and instruction in

novel ways to address the needs of unique learners. There are no clear-cut, explicit or correct solutions to address learning issues and teaching dilemmas; there are myriad ways to conduct teaching and instruction emergent out of multitudinous frameworks. Therefore, the main preoccupation for creative teachers is to overcome obstacles, both for students and themselves.

Method

In this paper we report a synthesis of studies of creative teachers carried out by a creative teaching research group. We reviewed 20 documents representing 15 data sets. One study (Rejskind, 1967; Rejskind & Sydiaha, 2002) utilized a correlational design and one was descriptive, based on a questionnaire (Rejskind, Reilly, Mitchell, & French, 2002). The remaining 13 used case-study methodologies which have a long history in creativity research (Policastro & Gardner, 1999) and are particularly appropriate for researching creative teachers because relatively little is known about them (Yin, 1994). They also meet Yin's criteria for case studies of "a contemporary phenomenon within a real life context . . . when . . . the boundaries between phenomenon and context are not clearly evident" (p. 12)[1].

The studies on which this synthesis is based are briefly described in the Appendix.

Participants. When we began our research we were told more than once that "creative teachers" was an oxymoron. Consequently we were careful to select participants for whom we could point to evidence of creativity. Case-study participants were selected if they displayed either everyday creativity or local creativity. Teachers who met Ripple's (1989) definition were involved in undertakings typical of most teachers, such as trying out new ways of teaching. For example, Tony was concerned with finding the best way to assign students to groups (Bamford et al. 1999) while Johanne had a discipline problem with senior secondary students who "were driving me crazy and I wanted to change the situation" (p. 9). Both demonstrated creativity by

addressing their problems through action research. Others who demonstrated everyday creativity were involved in creative undertakings and initiatives such as introducing innovative curriculum, adapting inquiry teaching methods, or engaging in action research in order to improve their practice.

Local creators, who have a reputation for creative work within a local context (Craft, 2002), were identified by being nominated as creative by colleagues in Faculties of Education and by either having a reputation for innovation beyond their teaching unit (school, or university department) or receiving awards for their work. For example Luisa, an elementary school teacher, made a demonstration video of whole-language instruction which was used throughout her school board (Riccardi, 2001). Five teachers displayed local creativity.

Participants came from a variety of ethnic groups and included: elementary, secondary, and university; rural and urban; male and female; beginners and experienced; special education teachers; a piano teacher; and a retired teacher of the gifted. All case studies except Ricci (2002) took place in Quebec where integration was mandated and ethnic diversity was the norm.

Procedure. The first author conducted an initial synthesis based on eight case-study documents. The rest of the research team tested the emerging categories and themes in relation to the data with which they were most familiar. The categories and themes were then refined and extended through ongoing discussions and subsequent analyses of the remaining documents. The two quantitative studies were not used in the process of identifying themes but were used in the final synthesis to further substantiate them.

Analysis. Constant comparison (Glaser & Strauss, 1967) was used to identify concepts in the initial eight documents. These were then grouped into categories; related categories were grouped into themes; and relationships among themes were explored. Consistent with qualitative

methodology, we did not use frequency counts of instances of categories as a measure of their importance. Given the widely differing foci of the studies, counting was not relevant in that the absence of a theme or category from a document indicated only that it was beyond the scope of that particular study. Instead, we considered whether or not they were present in each document and also how central they were to the study under consideration. A category or subcategory that emerged as a central focus in any study was included. Categories which were not central to any study but that occurred in most were also included.

Findings

Four themes emerged from the studies, and their interaction also proved important. Taken together, they show that teachers' creative process grew out of the interaction between their personal characteristics and the communities in which they lived and worked, and this process in turn resulted in a variety of outcomes, which reflected teachers' values and communities. The first theme, *Personal Characteristics*, details the teachers' characteristics relevant to creativity. This includes personality characteristics, their motivations for being creative, and the personal values that shaped their creative teaching. The second theme, *Community*, reflects the extent to which teachers' creativity is embedded in the professional and personal communities to which they belong. Both of these themes were evident in every case study examined. Two themes that were pervasive but less central were *Outcomes* and *Process. Process* involved teachers using the first two thematic elements in innovative ways to address practice issues. *Outcomes* referred to the products of teacher creativity, such as learning and products. Outcomes resulted from teachers' process and reflected both their personal characteristics and their communities.

The following narrative illustrates the themes and their interactions. It describes a secondary science teacher engaged in an award-winning project about beluga whales. Except where

indicated, the story is told in the teacher's - Alice's[2] - own words, excerpted from interviews and observations by Chennabathni. Some examples of themes and categories are noted in brackets.

> What led me to do the project was, [the Vice Principal] (*community: educators*) came to me and said we have money and nobody wants to involve themselves. Can you see yourself doing this? I don't think I ever said no to an opportunity like that (*personal characteristics*). And it just sounded like the students might be able to get something out of this. It looked like something that could draw together diverse groups, which is what happened (*outcomes: connection*).
>
> The program was to study environmental concerns within the student's area. I got the project in October and had to have the kids put together a presentation for November and the final project presented in May (*community: educational structures*). So I chose the topic for them and gathered resources and people (*community*) that I knew would be able to help the kids.
>
> Well, I presented the idea to my biology classes. And then I went to specific students and asked them. But it wasn't just by invitation; kids who were interested were accepted as well. It was a very mixed bag of kids. Ah! Some we called them frequent flyers to the Principal's office (*community: students*). That was the biggest part of my job, to get started. After that, the kids are the ones who brain-stormed and planned the rest of it.
>
> The first thing we did, [was] to sort of immerse them in the subject. [A community volunteer] put together a background presentation on whales (*community*). She brought in a Baleen, and a whale tooth and a little jar of krill, and other things like that the kids could actually handle, so it made them a lot easier for the kids to get started, to get involved. Then I went through the calendar and let them know what the deadlines were (*community:*

educational structures). And the kids worked backwards from that, to figure out when certain parts had to be done and when things had to be handed in to me. I had to see rough drafts, so I that could give them comments back. We had enough diversity of talent that they were all able to contribute in one form or other. We had very good artists, very good speakers, technologically capable (*community: students*). And so, they all had a role to play. Presentation of results was video conferencing and phone conferencing in May (*outcomes*).

[That was] the initial program. In the research, they have found that the Beluga whales were probably doomed. In fact, the kids were devastated and so was I (*personal characteristics: personal intelligences*). And I said well that's fine, is there anything you can do about it? And the kids went through brainstorming possible products. I was looking for something they would do that would tie them more firmly to their community (*personal characteristics: values*). That would have some kind of long-term results. And I told them, they had to choose something that would maximize their impact, and something they would have the contacts for, or be able to easily develop contacts so that they would have the resources and something that would have a positive effect. Then I told them it had to be hands on and it had to be fun (*personal characteristics: values*). And from there on they sort of directed it themselves.

So they chose to put on a play to elementary schools, talking about the Beluga whale, just how students could help. They found an adopt-a-Beluga-whale project, where they could raise money to fund research by adopting a Beluga whale. And they had found a project where they were trying to establish a marine park. And so the kids could involve themselves in that (*outcomes: products, connection*). So really the initial project was small, the final project was huge. They were really involved, but you know in retrospect they are

looking for that kind of thing - unusual activities, that aren't just book learning, but that really allows them to give to their community, and allows them to feel that they are contributing something (*personal characteristics: personal intelligences*). And that was my emphasis throughout. How are you going to make a difference to the world? (*personal characteristics: values*).

The first paragraph of this example encapsulates the process. The Vice Principal (*community*) triggered it when she invited Alice to participate. Alice's personal characteristics led her to accept the challenge, and her values and the community shaped her educational decisions. Increased group cohesion, one of the resulting outcomes, reflected an important value for Alice. Thus, the process involved the interaction between Alice's personal characteristics and her communities, which together produced many creative outcomes.

Theme: Personal Characteristics

Teachers' personal characteristics played a central role in their creativity. Three categories were particularly important: personal intelligences, motivation, and values.

Personal intelligences. In every case teachers demonstrated high levels of personal intelligences, both intrapersonal and interpersonal (Gardner, 2001). They knew their own (intrapersonal) and others' (interpersonal) characteristics, including thoughts, feelings, motivations, and intentions, and were ready and able to use this knowledge in the service of learning, both their own and their students. Grace, a university instructor, noted "I am a very visual learner. It helps me to put a lot of my ideas on the floor and stare at them, remember what it is, and make notes of what the connections are . . ." (Lilly, 2002, p. 97)[3]. She used this approach to plan her course. Ken described the way in which weekly meetings of an action-research group "provides a respite, a sounding board and are very encouraging, provided I am

willing to be vulnerable" (Bamford et al., 1999, p. 10). And they were indeed willing to be vulnerable.

The teachers were equally tuned into others, including students, colleagues and administrators. Alice was motivated to continue the project after the competition because "the kids were devastated and so was I" (Interview by Chennabathni). Grace reported that she had alternative lesson plans at the ready and would "read the students" to sense which was most appropriate (Lilly, 2002, p. 80). Equally, teachers were aware of a wide range of conditions which impacted on students and made it their responsibility to manage them.

Motivation. All teachers in the case studies were intrinsically motivated, persistent and passionate about their work. Their creativity focused on activities that they themselves deemed to be important; none referred to extrinsic motivators such as merit pay or vacations. Alice eloquently summed up teachers' motivations when she declared that

> Teaching is my hobby, it's my job. Something I do really well, and it is also something I really adore. It is also seeing kids learn. I love seeing them excited. I love being in a position where I can watch and help it happen. I've got a lot of internal motivation to really do the best job I can. So I spend a lot of time . . . (Interview by Chennabathni)

"Fun", "humour", "enjoyment", and "interesting" were recurring aspects of intrinsic motivation, which Alice shared with other teachers. In Luisa's words, "So my creativity was . . . so I could be in an environment where I would enjoy my time, and let learning take place" (Interview by Riccardi).

Most teachers were also motivated to make a difference. Some, like Alice, wanted to make a difference to the world. Grace declared she "liked to challenge society by doing her part to make the world a better place for all to live" (Lilly, 2002, p. 71). Others set their sights on improving

the community, the educational system, or their students' lives and learning. The specific impact which they wanted to make reflected what they valued most.

Values. These were the mainsprings of teachers' intrinsic motivation and creativity; they provided a framework which guided teachers' decisions. Learning and personal development, and strong interpersonal and community relationships were the most common values. In the words of Morgain, a university teacher

> You also have to make sure that you . . . address all aspects of the person; mind, body, spirit and heart. Mind, in terms of learning about knowledge, and cognitive activities; body, in terms of physical activities, getting people to move around; and spirit, in terms of looking at values, morals, religion, and spirituality. (Dagenais, 2003, p. 26)

Strong interpersonal relationships among students, between students and teachers, and with colleagues were highly valued and "the necessary connections" among students (Lilly, 2002, p. 78) was a recurring concern. In Grace's words, "as far as learning and teaching goes, you need to be able to connect to human beings in a really positive way. If you can't, you shouldn't be there" (Lilly & Bramwell-Rejskind, 2004, p. 112). Even when student groups were less than successful they were considered worthwhile because "that's a real-life skill, being able to communicate and work in groups. Even though kids get frustrated by it, it's really important that kids develop those skills" (Bramwell-Rejskind, Halliday, & McBride, 2008, p. 215). Cultivating these strong interpersonal relationships was frequently why these teachers tended to choose interactive and collaborative learning approaches.

Strong relations with colleagues were also highly valued because, as Alice said, "it is very hard to work in a vacuum" (Interview by Chennabathni). So teachers sought out like-minded colleagues for collaboration. The "genius" of the action research group that teachers established

in one school was "that it has drawn us out of this solitary existence and made us accountable to each other" (Bamford et al., 1999, p. 15). Diane even stated that her "greatest pleasure is experiencing the strong bonds and support that are created among educators" (p. 16).

All case-study informants valued individuals' well-being and personal development. Typically, the most common rationale for choosing to use inquiry and child-centred teaching methods was that they resulted in increased "success for all" (Bramwell-Rejskind et al., 2008, p. 217). Grace considered "empowering individuals" (Lilly, 2002, p. 71) to be an important aspect of her teaching, while Esfir, a piano teacher, showed her concern for individual development through her goal that students learn both to express their feelings through their music and also to cope with performance anxiety (Kronish, 2004).

Intellectual activity, particularly thinking and learning, was another shared value. Consistent with Alice, teachers had little interest in rote learning. Rather, their goal was learning that was "useful", "relevant", "meaningful", or "authentic". For example, teachers believed a key advantage of inquiry methods of teaching was that it taught transferrable skills.

> I think that primacy of process is a really important advantage to students because this process is something that will take them through and help them to cope with many of the different challenges that they may face . . . But knowing the difference between liver warts and mosses I don't think is such a big deal in most people's lives. (Bramwell-Rejskind et al., 2008, p. 212)

Similarly, it was important to Esfir to "show students how to 'find a sound that can express feelings of student, to make them feel something, to tell something' instead of emphasizing where to place the next finger" (Kronish, 2004, p. 146).

Other personal characteristics. Creative teaching required risk-taking, but security was also

important. Typically, Grace told us she was "conscious that my teaching is a wild ride" (Lilly, 2002, p. 84). Diane described herself as a person who takes "great risks while feeling secure using known structures" (Bamford et al., p. 16) and Luisa considered school to be "a safe place. . . . where I could do exciting things" (Interview by Riccardi).

These creative teachers were hard working, non-conforming, knowledgeable, intuitive, confident, flexible, and energetic. A correlational study (Rejskind, 1967; Rejskind & Sydiaha, 2002) showed that in comparison to their less creative colleagues, teachers higher in creativity were more dominant, and higher in social presence and self acceptance. They were also less concerned with making good impressions, and lower in self-control.

Theme: Community

Teachers' personal characteristics were embedded in the communities in which they lived and worked. Successful creativity arose when the two worked together. Teachers *in community* refers to aspects of the community which had an impact on teachers by virtue of their membership in it, including the educational community, the local community in which teachers lived, and society at large. Teachers *building community* explores teachers' actions, which built or strengthened communities for their students and for themselves.

Teachers in Community

Our informants were aware that the communities to which they belonged shaped their creativity. In one instance a teacher recognized that the "factory model" of education no longer met the needs of students in the changing economy and so changed her practice to constructivist and individualized approaches to teaching (Bramwell-Rejskind et al., 2008, p. 211). In general, though, the community outside educational circles shaped teachers' creative work in more concrete ways. Alice’s success would not have been possible without resources provided by a

business partner, and her choices of content were influenced by the availability of experts in the community who could be invited into classrooms in person or on-line.

Students. The educational community in which teachers spend most of their time is the classroom and successful teaching depends on adapting to students; thus students' perceived interests, abilities, and needs shaped teachers' creativity. For example, implementing group work challenged teachers to be creative and so Tony spent several years conducting action research focused on the best way to group students in mixed-ability science classes (Bamford et al., 1999; Mitchell, Reilly, Bramwell, Solnosky (sic), & Lilly, 2004). And often teachers were creative in response to students' resistance because "you have to develop methods of getting around that resistance" (Bramwell-Rejskind et al., 2008, p. 222).

Educational structures. These are the "givens" for all teachers and factors as diverse as official curricula, busing, resources (or, more often, the lack of them), and school timetables set the parameters within which teachers were able to be creative.

The formal curriculum provided a framework within which teachers felt free to improvise. Typically, Diane stated that she felt successful when she satisfied her own goals while also "staying with the ministry's prescribed curriculum" (Bamford et al., 1999, p. 12). Sometimes, though, there was a mismatch between student-centred teaching, which our informants favoured, and the traditional school organization, curriculum, and evaluation practices. One teacher noted that "as long as the subject matter . . . is going to be primary over anything else for evaluation of courses, then inquiry is going to have a lot of trouble moving [into] senior high school classes" (Bramwell-Rejskind et al., 2008, p. 224).

Use of time was particularly problematic. In secondary schools many teacher found that there was not sufficient time to "cover" the curriculum for externally-set final exams while also

attempting to teach students to think rather than memorize. Timetabling made project-based learning, integrated curricula, and cross-class collaboration difficult to implement. And as everywhere, teachers were pressed for the time creative problem-solving requires. Teachers used their creativity to get around such problems, often with the help of their administrators.

Educators. Administrators assisted teachers in finding ways around the limitations imposed by educational structures and served as intermediaries between teachers and communities beyond the school. Occasionally they made major changes as for example when some ESL teachers persuaded the school to introduce block timetabling. Ricci (2002) noted, "Although the concept of block timetabling would not be high on anyone's list of significant educational methodologies or theories, without it, Victoria's Integrated Curriculum Project would not have been possible" (p. 30). But most support was more modest, as for example when Luisa "used to go to him [the Principal] and just talk" (Interview by Riccardi) and this laid the foundation for her to develop her own approaches to teaching. Later in her career she initiated many projects but when administrative support was lacking she dropped them and looked for new activities or a new school where her ideas were welcomed (Riccardi, 2001).

Bamford et al. (1999) illustrates the impact a principal can have on projects' success. Initially he supported two teachers struggling to improve the achievement of special-needs students. He made small changes to accommodate their evolving needs, and encouraged them to share their approach with others. He helped find funding, sometimes through "creative budgeting" (p. 17), and adjusted timetables so that colleagues could meet over lunch once a week. He passed along information about school board priorities, and made the Board aware of teachers' projects. Equally crucial was his expressed support of teachers' activities in conversation with students, other teachers, parents, and board officials, and by welcoming

visitors to see their projects. In Johanne's words, "I would not have been able to do this [project] without the school principal's support **and** involvement" (p.9).

Colleagues also influenced our informants. They acted as mentors, were a source of ideas, celebrated successes, and collaborated on projects. Johanne wrote

> The research group has been my life buoy and therapy group. It has given me the strength to continue when I was discouraged, and invaluable feedback and suggestions from all the participants. I know I am a better teacher because of my involvement in this Action Research Group. (Bamford et al., 1999, p. 9)

Several informants also noted the importance of university personnel in making them aware of up-to-date methods and theory; the Principal in Bamford et al. made a point of inviting them to his school, both as resources and to celebrate the progress teachers were making.

Unsupportive colleagues and administrators sometimes hindered creative teaching. Some informants discussed the importance of winning over critical colleagues. Others, particularly teachers without tenure, feared negative evaluations if they did things differently. Luisa got into trouble with school inspectors when her teaching did not fall into traditional patterns, to the point that one "had me practically in tears" (Interview by Bramwell). But she persevered.

Creativity would be both difficult and risky without at least minimal support from other educators. Alice reflected that during one year when she was not supported by the administration she had done "very little outside the ordinary . . . . because I was so mad and so hurt, and scared . . . So when I am secure I am willing to be, able to be as crazy, as creative, as off-the wall as I can be" (Interview by Chennabathni).

Building Communities

Teachers did not simply react passively to their communities; they also actively shaped

them. They used many strategies to build communities of learners for their students. All teachers gave assignments which required student interaction in their classes, and they built many connections beyond the classroom. Typically, in a science course Alice had students "team up with a kindergarten class, and with a senior class and they have to do [measure] themselves, and they have to do either a senior citizen or an infant. So they have to go outside the school" (Interview by Chennabathni). Even Esfir, who gave private piano lessons, built a strong community of learners by expecting students to come early to lessons so they could interact with each other, having them perform for each other and for their families, and going to concerts together (Kronish, 2004).

Many teachers also built communities for themselves and their colleagues. As Bamford et al. note (1999), "A practitioner can be a solitary figure, coping alone in his or her classroom. This situation is not conducive to new ideas, innovation" (p. 15). Building a community of practice with like-minded colleagues filled that vacuum and reduced the risks of trying new methods. They mentored each other, shared ideas, collaborated on projects, and provided emotional and practical support. The importance of this kind of community is reflected in the title of their paper which was a quote from one of the participants: "*You may call it research - I call it coping*".

Interpersonal processes in community building. Reilly (2005) examined the interpersonal processes involved in community building. Values functioned as tacit rules for interaction; they included positive regard, promoting inquiry, and disclosing the self. Positive regard was reflected in statements such as "I really liked what - who came up with the comment . . . ?" (p. 176). Promoting inquiry were values that encouraged the promotion of a collaborative climate of exploration and learning through inquiry, and included listening / questioning for clarity (which

were statements which demonstrated focused listening on what the other person had been saying and confirmed understanding of the speaker's content and emotion) and openness to disagreement / feedback (interactions that communicated an attitude of willingness or readiness to hear and receive different, conflicting or contradictory perspectives). Reilly concluded that this "value functioned as a driving force for discussion. . . ." (p. 173). Self-disclosure, was reflected in statements such as "I don't know if I'm really supposed to do this" (p. 193).

The same processes were observed in other groups. Both self-disclosure and positive regard are reflected in an exchange in which one teacher described a problem she was having and another responded, "Happens to everybody. Happened to me yesterday" (Bamford et al., 1999 p. 15) and the group went on to make suggestions about how to handle it.

Theme: Outcomes

The outcomes of teachers' creativity fell into four categories: observable products; learning/personal development; motivation; and connection (interpersonal relationships and community). Several studies provided evidence corroborating teachers' observations. Most projects had many outcomes. For example, in the Ricci (2002) study of a private school in Hong Kong outcomes included observable products, student learning, a move to block timetabling, increased student and teacher motivation, changes in the school philosophy, and changes in teachers' practices.

Observable products. Many kinds of products were reported, including web sites, plays, successful businesses, and various models such as working musical instruments. In both Ricci (2002) and Bamford et al. (1999) one observable product was a new curriculum. Often students' products were notable because it was the first time the classes had participated in such activities. At other times it was the quality of the work which stood out, as seen in a teacher who worked

with a class of special needs students. In spite of their disabilities, when their work was displayed at the school knowledge fair[4] "each student received high marks and praise from the [independent] judges. Interestingly, [her] students typically score the highest in the school for their grade level" (Mitchell, 2002, p. 7). Other observable products included demonstration videos and workshops (Riccardi, 2001), conference papers and journal articles (Bamford et al., 1999; McBride & Dagenais, 2002; Mitchell et al., 2004), funding for new projects (Bamford et al., 1999; Chennabathni, 2005), and numerous MEd. projects and doctoral dissertations.

Learning and personal development. In all cases teachers talked about learning, both their own and their students', as a central outcome of their creativity. Ricci (2002) confirmed student learning with test results, which showed that students who had followed the revised curriculum wrote more fluently in English than students who followed the regular curriculum, without any decrease in scores on traditional outcome measures. Teachers valued learning processes more highly than facts. Alice said "even though they can't remember the actual parts [of the eye] they'll remember how they got the information, they'll remember sort of how to learn" (interview by Chennabathni). To test that this transfer of learning did occur Rejskind, et al. (2002) administered a questionnaire to secondary school students concerning their use of skills learned while carrying out inquiry-based projects. Students reported they were comfortable using the process and applied the strategies in other courses. They also reported evidence of personal development in that learning the inquiry process helped them to learn about themselves. Mitchell (2001) provided evidence of students' positive changes in attributions, and three studies documented students' creativity as an outcome (Reilly, 2005; Rejskind, 1967; Rejskind & Sydiaha, 2002; Ricci, 2002).

Teachers, too, learned as a result of their creative undertakings. Bamford et al. (1999) noted

"We have each acquired new knowledge; knowledge about teaching, knowledge about our students, and knowledge about ourselves as professionals" (p. 2) and they describe many outcomes of their learning. Johanne documented the process by which she improved her control over students' behavior, which in turn improved the atmosphere and learning in her classroom. Tony changed the way in which he organized groups in his science classroom (Mitchell et al., 2004).

Connection: Interpersonal relationships and community. The interpersonal processes and community development (described under the theme of community) resulted in strong connections. Grace asserted that her teaching innovation "established an incredible bond. And they just shared like crazy" (Lilly & Bramwell-Rejskind, 2004, p. 112). Dagenais (2003) described the development of interpersonal relationships in a university course. Bamford el al. (1999), Reilly (2005), and Kronish (1999, 2004) described successful communities of learners.

Motivation. Teachers frequently referred to increased student and teacher motivation as an outcome of their creativity. Typically, an informant stated "I think one of the major advantages [of inquiry instruction] is the increased interest" (Bramwell-Rejskind et al., 2008, p. 216) and Ken commented "the students love this project" (Bamford et al., 1999, p. 10). As yet, though, there is little independent documentation of increased motivation.

Process: Interactions Among Themes

Several case studies told the story of a teacher's project, from beginning to end (Chennabathni, 2005; Dagenais, 2003; Lilly, 2002; McBride & Dagenais, 2002; Reilly, 2005; Riccardi, 2001; Ricci, 2002) and elements of that process appeared in every case study. In all instances there was a synergistic interaction between teachers' personal characteristics and their educational communities. Sometimes, as with Alice, teachers seized an opportunity presented by

the educational community because it fit personal motivations. Others, like Luisa (Riccardi, 2001), initiated projects and then looked for supports or outlets for them.

Teachers' characteristics, particularly their values and personal intelligences, were central to the process. Alice, whose primary value was connection, assigned projects which connected students to each other and to their communities (Chennabathni, 2005). Luisa, who most valued reading, pioneered whole-language reading instruction in her school board (Riccardi, 2001). McBride, who cared intensely about the academic success and social integration of special-needs students, experimented with inquiry projects, which made both possible (Mitchell, 2002).

But the community also played an essential role. Initially, the Vice-Principal made Alice aware of the competition and the School Board, a business partner, a community activist, a university professor, and internet sites all provided support. And when the project continued after the competition, community resources again came into play because Alice directed students to choose activities that "they would have [community] contacts for . . . so that they would have the resources" (Interview by Chennabathni).

As previously discussed, teachers not only were influenced by their communities, they in turn influenced the communities in which they worked. They were able to arrange for changed timetables, find funding for projects, and build communities of learners both for students and with colleagues. In turn, these changes in their communities shaped their creativity. Thus the creative process was one in which teachers' personal characteristics interacted synergistically with their communities to bring about outcomes which were satisfying to both.

Discussion

The heart of our informants' creativity lay in their ability to combine their personal characteristics, particularly intrinsic motivation and values, with the demands placed on them by

the communities in which they lived and worked. This process resulted in many and varied outcomes. This is somewhat different from the picture of eminent creators, and extends our understanding of the interplay between individual and community in everyday creators.

Creative Teachers, Eminent Creators, and Everyday Creativity: Connecting the Dots

When we began this research, studies of creative individuals were dominated by the "Big C" conception of creativity; see for example, the special section of the *American Psychologist* on creativity edited by Sternberg and Dess (2001). At the same time, there was growing interest in everyday creativity (e.g. Bateson, 1999; Woods, 1995) and social aspects of creativity (e.g. Amabile, 1996; Harrington, 1990; Montuori & Purser, 1999; Sawyer, 1997), both of which have grown in importance since. Our findings connect with aspects of all three.

Personal characteristics. Our case-study participants shared many personal characteristics with eminent creators. All were intrinsically motivated, hard-working, persistent and passionate about their work; they were risk-takers and valued intellectual activity. Yet, teachers differed significantly from Big C creators in that they demonstrated high interpersonal intelligence and valued interpersonal relationships. In contrast, Ochse (1990) described eminent creative individuals as "reserved, withdrawn and introverted . . . having difficulty or little interest in establishing warm interpersonal relationships" (p. 125). Given their job, this is likely an indication of a good match between teachers' personality and their ecosystem characteristics (Harrington, 1990).

Values. Educators have noted the importance of values in teaching, including the interpersonal values our teachers expressed (Noddings, 1992; McNiff & Whitehead, 2006; Woods, 1995) but they have not been a significant topic in creativity research (Koof, Chen, Himsel, & Greenberger, 2007). Fernal (1987) speculated that values are indeed important and

two recent studies reported that the general values of self-direction, universalism, and stimulation are correlated with self-reports of creative activity in university students (Dollinger, Burke, & Gump, 2007; Koof, et al, 2007). Our synthesis confirms the importance of such relationships and illustrates the way in which specific values drive and shape the creative process and, through it, creative outcomes.

Community. Studies of eminent creators have documented the importance of community: environment (Amabile, 1996), field and domain (Csikszentmihalyi, 1990), zeitgeist (Simonton, 1999), milieu (Gruber & Wallace, 1999), and culture (Lubart, 1999; Mockros & Csikszentmihalyi, 1999). However, the emphasis has been on how the individual is shaped by the social world he (rarely she) inhabits. In that their creativity depended on successful interaction with the community, our teachers' creativity more closely resembled the everyday creativity of improvisation groups (Sawyer, 1997; 2004) than that of eminent creators. Further, our findings confirm Harrington's (1990) speculation that creative individuals are active shapers of their environments.

Implications

There is no shortage of advice to individuals on how to be more creative, largely based on research into eminent creators and everyday creators in other domains. (e.g. Ambrose, 2005; Csikszentmihaly, 1996; Sawyer, 2006). The additional ideas that follow from this synthesis are obvious but none-the-less significant in that they are inconsistent with those current approaches to educational reform, which focus on mandating changes administered through top-down approaches. As Ricci (2002) noted, at best, top down attempts at change led to "resigned acceptance" from teachers (p.17). At the very least, for teachers to feel and be creative there must be a degree of personal ownership (Woods, 1995).

Collaborating for creative change. Teachers were most successful when they actively collaborated with administrators. Both bring crucial knowledge and responsibilities to the situation. Teachers are most knowledgeable about the community they deal with directly - classrooms - and the needs of their individual students. They also are in the best position to mesh these with their own values and skills. Administrators, on the other hand, are best able to act as intermediaries between individual teachers and communities beyond the classroom.

Creative teachers will be most successful when they use their personal intelligences to choose projects that fit both their own values and their students' needs and interests. As well, Bamford et al. (1999) present good advice when they state "Experience tells us that an effective road to successful [projects] will be found if the support of the administration is secured as early in the process as possible" (p. 17). Thus, creative teachers need their administrators to recognize their intrinsic motivation and that they work best when supported in their own initiatives. This is unlikely to happen if all teachers in a school or district are expected to implement the same changes at the same time. Indeed, Woods (1995) and Scot, Callahan, and Urquhart (2009) paint pictures of the stultifying effects of such programs on both students and teachers alike.

This is not to imply that each teacher should develop unique activities in isolation. Indeed, our participants greatly valued cooperation with others, as reflected in their community-building efforts with colleagues. When administrators build on teachers' intrinsic motives seemingly small actions can have huge payoffs, as both Bamford et al. (1999) and Alice's case illustrate. Following those examples a principal might insist that teachers undertake to improve their teaching, and then support them individually and as a group as they struggle to do so. They can help by making teachers aware of school board or community priorities and resources such as special funding or projects. Conversely, keeping the community aware of the value of teachers'

projects is an important supportive administrative role. Principals also need to recognize that risk-taking is integral to creativity and change; even excellent, experienced creative teachers will sometimes fail. That is the time at which teachers are most in need of administrative support.

Limitations

The limitations of this synthesis arise from the choice of participants in the studies on which it is based. Participating teachers had been recognized for their creativity and they were successful in it. Furthermore, the focus of the studies was on successes, and so few informants spoke about their failures. This limits the extent to which one can generalize to all creative teachers. There are certainly many teachers whose creativity is hidden within their classroom, or whose creativity is not successful, and these teachers too are worth seeking out for study. Additionally, many teachers in these studies included elements of inquiry and other constructivist methods in their repertoire. Creative teachers in jurisdictions that do not allow for these might show different patterns.

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Footnotes

[1] The studies on which this synthesis is based are briefly described in an Appendix which can be found at http://spectrum.library.concordia.ca/6747/.
[2] Pseudonym. Teachers' names are those used in the source documents.
[3] When quotations are taken from raw interview data, the name of the interviewer for the case is given (e. g. Interview by Chennabathni); when they are taken from a report, the author and date are cited.
[4] Similar to a science fair but involving projects in many subjects.