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Andrew Kitchenham – Editor, University of Northern British Columbia

A Letter from the Editor

Dear Colleagues:

This issue of NWATE's journal, *The Northwest Passage*, represents the first time that we have had two issues in one year; at least, in my seven years of working with the association as President, Past President, Conference Chair, Conference Organizer, Co-Editor, and Editor of the journal.

I chose to make this issue on the theme of 21st century learning and sent out the call in early 2011. I was an interesting experience to read how many different ways that 21st century learning could be interpreted which, of course, always makes putting together a journal issue both a treat and a challenge.

Like last year, we used my institution's server to host the NWATE website but did not use the online submission system for a variety of technological and administrative reasons. The As we did for the Fall 2011, I went old school with the submission system and manuscripts were emailed to me and I sent them to at least two reviewers through email attachments. This year, I used a core group of reviewers from eight different universities representing six different disciplines. I thank those people as they did a terrific job of reviewing and all made the requisite deadlines. Different from last year, I used a review system similar to larger journals such as those hosted by Sage which meant that I did not use track changes system of feedback. Some reviewers were able to include comments in the pdfs but most used the standard review form and listed suggested changes that way. The feedback I received from both authors and reviewers was mixed but many preferred this system. If any readers have an opinion as potential authors, please let me know.

The NWATE conference was hosted by St. Martin's University and was a great success. The 2012 NWATE conference will be hosted by the University of Alberta in Edmonton, Alberta and is being organized by Dr. Jim Parsons, NWATE President. The call for proposals and final dates will be advertised on the NWATE website when they are ready.

I hope that you will perceive that this issue of the journal still maintains the rigour, high quality, and strong reputation that previous editors, authors, and reviewers have established since the journal's inception.

Andrew Kitchenham – Editor

(University of Northern BC)

21st Century Learning in Teacher Education

The 16 articles in this issue of *The Northwest Passage* present a variety of perspective on 21st century learning in teacher education. We see several examples of how 21st century learning is practiced in elementary and secondary schools, several studies that incorporate elements of 21st century learning in teacher preparation programs from Canada and the United States, discussions of key topics such as cyberbullying, cultural sensitivity, and reflection, and balanced assessment approaches, to name but a few.

The first article, "Teaching 21st century skills: Voices from the field" (Kitchenham, 2011) "presents an overview of the 21st century student characteristics based on the professional literature. It then outlines specific pedagogical techniques that can be used to improve literacy in school-aged children. It also includes specific examples of these techniques used in North American classrooms" (Abstract, p. 14).

Next, Campbell (2011) in her piece entitled, "Teacher as researcher: An essential component of teacher preparation" details "a brief synthesis of research findings from studies of teacher education programs that include attention to teacher research. It then details findings from a study of beginning teachers who learned about and conducted teacher research in their preservice M.A.T. program. Surveys and follow-up interviews show that these beginning teachers (2-6 years in the field) utilize a variety of research strategies, and the data from their classroom inquiry informs and sustains their work. Teacher research is more than just a requirement of their teacher preparation program; it is an essential habit of their classroom practice" (Abstract, p. 23).

Next, in their article, "Revisiting teacher leadership: Perceptions of teachers and principals," Harrison and Birky (2011) set out "to discover perceptions of teachers and principals regarding teacher leadership. The researchers investigated how selected Oregon teachers and administrators defined teacher leadership, as well as how they perceived roles, characteristics, and qualities of teacher leaders. Four themes emerged from the results: collaboration, interpersonal relationships, managing the work, and teaching and learning. Results showed that teacher leaders often acted in a collaborative environment and expected colleagues and administrators to be collaborative. Developing and maintaining positive relational skills were of importance, particularly related to caring and serving, as well as the dispositions of honesty, empathy, trustworthiness, and being a good listener. Managing work-related tasks was mentioned frequently: focusing on the vision for the school, enhancing the mission, chairing a committee, developing plans, and initiating tasks. Activities related to teaching and learning were of importance: planning, implementing, and evaluating instructional practices and student outcomes" (Abstract, p. 35).

Ciechanowski (2011) argues in "Points of leverage: Navigating tensions between socio-culturally relevant teaching and accountability pressures" that her "qualitative study explores how an elementary teacher navigated tensions between accountability and bilingual learners' needs. Questions included: How did a teacher employ students' socio-cultural resources in content areas? How did accountability shape use of resources? What are points of leverage—i.e., promising instructional practices to be further developed and harnessed—to meet student needs? Findings show how Ms. Montclair briefly connected to students' resources, focusing on making content comprehensible, transmitting information, staying on pace, and practicing testing. Although familiar with project-based and family/community-oriented learning, accountability measures impacted instruction. Yet promising instruction integrates socio-cultural resources to promote innovation and meaning" (Abstract, p. 47).

In "Critical inquiry and collaborative action: Transforming a College of Education to recruit and retain underrepresented populations to teacher education," Chu, Carroll, Flores, and French's (2011) "documentary account describes how a task force comprised of college of education faculty and university admissions staff from a medium sized comprehensive university engaged in a critical inquiry process to address the issue of recruiting and retaining underrepresented students in teacher education (i.e., men and culturally and linguistically diverse students). The group examined the issues and challenges associated with an education college's recruitment, application, selection and retention

processes. The paper suggests how critical inquiry groups of higher education faculty and staff may support the transformation of policies, practices and relationships needed to increase the number of teacher candidates from non-dominant communities" (Abstract, p. 60).

Next, in their article entitled, "A co-inquiry into what matters most in written reflections: Helping students integrate cognition and affect," Bault, Wolpow, and Werder (2011) argue that "(t)wenty-first century teacher education places increased emphasis on collaborate evaluation of student work. This study provides the voices of a graduate student in teacher education, the professor teaching a literacy methods course, and a university writing instruction support director as they endeavored to develop a rubric to help pre-service secondary teachers improve their reflective writing. Discussion and short essays, guided by that same rubric, provide conclusions on the part of the co-inquirers about the importance of considering both thoughts and feelings in assessing reflective writing and conducting co-inquiry" (Abstract, p. 72).

In Roscoe's (2011) article, "Towards balanced assessment of student teaching performance," he argues that "(a)ssessment practices in schools have undergone dramatic changes over the last decade, and applying this knowledge to the assessment of student teachers is a challenge currently facing teacher preparation programs. K-12 assessment has moved towards a "backwards design" approach, greater student involvement, a wider range of strategies, and assessment systems that balance summative and formative assessment. However, the assessment of student teaching performance during field experiences has often overemphasized summative assessment, collecting data for making judgments, at the expense of formative assessment, gathering information to improve student teacher performance. Recently, one institution recognized the need to reexamine its approach to field experience assessment based on the thrust towards 21st century education, the growing knowledge base in assessment, and feedback from its educational partners. The article is a case study of this improvement initiative: the context, process involved, the outcomes of the improvement process, and implications for teacher education" (Abstract, p. 84).

In "What matters is mutual investment and evidence-based dialogue: Designing meaningful contexts for teacher learning," Ryken and Hamel (2011) investigate "describe a public school/university partnership model designed to support practice-oriented communication among educators– where professionals from various roles, institutional affiliations, and experience levels, communicate together about the details of their teaching. We outline the principles behind our approach and describe the specific practices we use to promote communication that engages teachers' pedagogical thinking. We share how teachers' own practice can become a centerpiece of professional development, and how authentic questions and evidence help educators develop insights into the relationship between their own assumptions, curriculum materials, and student understanding" (Abstract, p. 95).

Bright and Dyck (2011) in "It hurt big time: Understanding the impact of rural adolescents' experiences with cyberbullying," outline how "(i)n the 21st century, the growing use of online technologies has challenged parents and educators to understand the concerns and issues faced by adolescents with cyberbullying both in and outside the school context. The purpose of this study was to examine rural adolescents' experiences with cyberbullying in Canada. The participants included 1752 adolescents who attended 16 schools in rural Alberta. The 73-item online questionnaire included the following question: If you have ever known someone to be bullied, been a target of bullying, or ever bullied someone using online communication please describe the situation(s) and what happened as a result. Youth described online pretending behaviors, harassment, threat-making and violent activity. This study highlights the importance of teacher education and professional development programmes that are focused on helping adolescents navigate the complexities of their online communication" (Abstract, p. 104).

Next, Davison, Miller, and Scarlett's (2011) "A model for professional development in elementary Science," argue that "(s)tatements of outcomes for 21st century learners typically include inquiry-based learning as a major goal. In the PRISM Project, 62 elementary teachers in Montana were selected to receive professional development using inquiry science instruction in their classrooms. Participants attended workshops designed to model inquiry lessons, participated in online discussions to

help them make their lessons more inquiry-based, and prepared Scoop notebooks containing three lessons demonstrating how they were implementing inquiry in their classrooms. Based on analysis of these data, participants were judged to have met the goal of the project to increase their use of inquiry in the science classroom" (Abstract, p. 117).

Slomp and Bernes' (2011) article, "Career coaching across the curriculum: Enhancing the career competencies of the 21st century learner," outlines "the effectiveness of a pilot project offered by members of the Faculty of Education at the University of Lethbridge entitled, "Career Coaching Across the Curriculum: Integrating Career Development into Classroom Instruction". It explores whether this pilot project effectively prepares pre-service teachers to integrate career education into curriculum. It also explores whether this pilot project contributes to the attainment of important career development competencies for students in the Kindergarten-Grade 12 educational system" (Abstract, p. 126).

In "Reimagining partnerships: Using the co-teach model to prepare 21st century teachers," Picanco and Darragh (2011) "describe the co-teaching model for the student teaching internship and its benefits for teacher candidates and the students with whom they work. The partnerships that have emerged from the implementation of co-teaching in eastern Washington state are explained. Co-teaching is in the process of being phased in by all four major universities in the region: Whitworth University, Washington State University, Eastern Washington University, and Gonzaga University. The universities and local districts partnered to form the Eastern Washington Co-teaching Leadership Team to plan and deliver training together. A study was conducted by the Eastern Washington Co-teaching Leadership Team in Spring of 2010 to determine mentor perceptions of the effectiveness of co-teaching for both students in the classroom and for teacher candidate training. The respondents supported co-teaching as an effective approach and offered recommendations for training mentors and teacher candidates more effectively in the future" (Abstract, p. 139).

Place, Smith, Bebee, Desmond, Luczak, and McCaig's (2011) article, "School-university collaboration: Perspectives on a hybrid space for literacy learning," outlines "the ongoing collaboration between a teacher certification literacy course and a local elementary school. Teacher candidates, elementary students, classroom teachers, and university instructors all collaborate to implement a literacy methods course, creating a hybrid space for learning in which university and school personnel work together to the benefit of all participants. The background of this collaboration is described, and literacy learning is explored from the perspective of each participant group. Themes from these perspectives suggest that structured interactions between teacher candidates and elementary students help bridge the gap between literacy concepts and classroom practice, and that participating classroom teachers and university instructors, as well as teacher candidates, learn from the ongoing examination of instructional practice" (Abstract, p. 147).

In his article, "Constructivism in practice: The potential for ubiquitous, 'low-tech' audio devices for literacy development in the 21st century," Jablonski (2011) describes how "four graduate level preservice teachers used inexpensive, MP3 players pre-loaded with audiobooks with the objective of increasing the reading fluency and digital literacy of elementary school children. The data collected included preintervention surveys, pre/post oral reading fluency scores, a log of daily listening experiences, and preservice teacher journals. The findings indicated that student-participants' oral reading fluency scores improved along with the students' confidence in reading. Additionally, both the preservice teachers, and the student-participants reported an increased awareness of how technology can be used for literacy development and enjoyment, suggesting an enhancement of digital knowledge and skills" (Abstract, p. 157).

In "Schools ain't what they used to be and never was: 21st century schools, learners, and teachers," Kawalilak and Paul (2011) present their "views, as university teacher educators and scholars, concerning some issues pertaining to the readiness of contemporary Canadian education to move forward, well, with confidence and competence, into the mid-21st Century. We posit that all which is possible, educationally, lives in the give and take between Canadian education's geo-political, economic and linguistic past, the current functioning of contemporary schools as contested learning and teaching sites, and the increasing impacts of globalisation. We draw from guiding adult education principles in

support of an enriched and expanded commitment to teacher professional development as a pathway to sustainable education reform" (Abstract, p. 170).

Finally, in their article, "The importance of using technology-enhanced 21st century literacy skills to support culture and diversity in the classroom," Lopez-Lopez, Hussein, and Ali (2011) argue that "(t)eaching in today's classrooms is not the same as it has been in the past; that is what teachers claim. There is a new generation of students, with new expectations and capacities, coming into the classroom. The Internet and technology in general are used everywhere to communicate and interact with others. Today, students are looking for different interactions and ways of learning in the classroom. Therefore, technology should be used not only because students are using new technologies ubiquitously outside of the classroom, but also because the use of technology can enrich students' understandings of diversity and culture, which can foster collaboration, participation, and collective intelligence" (Abstract, p. 180).

These 16 articles are of high calibre and demonstrate the varied and myriad issues of teaching in the 21st century and they begin to present some answers and raise further questions. The next issue of the journal will concentrate on preparing teachers for 21st century learning. Look for the official call on the NWATE journal webpage.

Andrew Kitchenham – Editor
(University of Northern British Columbia)

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Teaching 21st Century Skills: Voices from the Field

Andrew Kitchenham
University of Northern British Columbia

Abstract

This article presents an overview of the 21st century student characteristics based on the professional literature. It then outlines specific pedagogical techniques that can be used to improve literacy in school-aged children. It also includes specific examples of these techniques used in North American classrooms.

Imagine a world where a teacher could teach a Language Arts or Math lesson through the use of a laptop and an interactive whiteboard. Where the teacher could point out a grammatical rule or algorithm and have the students instantaneously download the information to their smartphones or iPods. Imagine that world today as we are at that point in our pedagogical journey. These students are the digital natives and many of them are being taught by digital natives; not by digital immigrants anymore (Prensky 2010). This is the Net Generation of teaching and learning and it holds so much potential for fundamental change (BCPSEA, 2011; Evers, Lang, & Smith, 2009; Martinez, 2009, 2010; The New Media Consortium, 2010; Naylor, 2011; O'Brien, & Scharber, 2010; Palfrey & Gasser, 2008; Rheingold, 2002; Schrum & Levin, 2009; Tapscott 2009; Toch, 2010). The jointly-sponsored, *Standards for the English Language Arts* (IRA & NCTE, 1996), stressed the fundamental importance of students' using a variety of technological resources from wikis and blogs to WebQuests and websites. To wit, in the last 10 years, there has been an explosion of professional literature related to the topic, especially as it pertains to the improvement of literacy in school-aged children through the use of technology-based resources. Germane to the present discussion, these are the Millennials who possess and need to have reinforced their 21st century skills.

Literature Review

As early as the late-1990s, Brandt (1998) pointed out that there is a disconnect between the 21st century learning skills needed in schools and the surrounding learning environments.

> Current education systems were designed with assumptions about the development of human capabilities and learning which are now being systematically revised in the light of new research. Designed to serve the needs of an earlier age, these systems are limited by the technology of the classroom, instruction, uniform progression, and prescribed knowledge. Perversely these limitations inhibit our ability to see radical alternatives based on new understandings about effective learning. Organized around the ideas of the factory and mass production, most current school programs are incompatible with our emerging understandings that learning must be active and that people learn in different ways, and in a variety of places. While most teachers are dedicated and hard working, honestly striving to provide young people with a good education, their capacity to tap into new ideas is frustrated by these outdated arrangements. (Schools)

We can easily remove "schools" and "teachers" and insert "teacher education programs" and

"professors" in the current state of preparing teacher-candidates to teach 21st century skills. His early ideas formed the 21st Century Learning Initiative which emphasizes the importance of brain and learning research and what we now know 21st century learners need to know. Almost a decade and half later, we have a more defined definition of 21st learning and there has been an increase in the number of scholars discussing the concept.

The Partnership for 21st Century Skills (2009) argued that students need to master the core subjects of English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, and government and civics as well as the five interdisciplinary themes of global awareness, financial, economic, business, and entrepreneurial literacy, civic literacy, health literacy, and environmental literacy. There are also three overarching themes, learning and innovation skills, information, media, and technology skills, and life and career skills. Learning and innovation skills encompass creativity and innovation which, in turn, includes thinking creatively, working creatively with others, and implementing innovations; critical thinking and problem solving which involves reasoning effectively, using systems thinking, making judgements and decisions, and solving problems; and communication and collaboration which includes communicating clearly and collaborating with others. Information, media and technology skills information literacy encompasses accessing and evaluating information, and using and managing information; media literacy which includes analyzing media, and creating media products; and ICT literacy which includes applying technology effectively. Life and career skills encompasses flexibility and adaptability which, in turn, includes adapting to change and being flexible; initiative and self-direction which involves managing goals and time, working independently, and being self-directed learners; social and cross-cultural skills which entails interacting effectively with others and working effectively in diverse teams; productivity and accountability which involves managing projects and producing results; and leadership and responsibility which includes guiding and leading others and being responsible to others. Lastly, and very pertinent to teacher education programs, are the 21st century support systems of 21st century standards (e.g., stressing deep understanding rather than shallow knowledge), assessment of 21st century skills (e.g., balanced assessment), 21st century curriculum and instruction (e.g., applying 21st century skills across disciplines), 21st century professional development (e.g., discussing and learning 21st century learning teaching practices), and 21st century learning environments (e.g., supporting professional learning communities) (The Partnership for 21st Century Skills, 2009).

Citing a 2006 study on job skills and characteristics, Trilling and Fadel (2009; see pp. 7-11 for a fuller discussion of this study and other studies), argued that students graduating from high school, technical colleges, and universities are lacking in specific skills that include: (1) oral and written communication, (2) critical thinking and problem solving, (3) professionalism and work ethic, (4) teamwork and collaboration, (5) working in diverse teams, (6) applying technology, and (7) leadership and project management. In other words, graduates do not possess 21st century skills when they enter the workforce. Trilling and Fadel's (2009) book is devoted to explaining not only why 21st century skills should be acquired and promoted but also how these learning skills can be encouraged in our students. In particular, they argued that there are four forces that converge and lead us to innovative ways of learning in the 21st century: (1) knowledge work, (2) thinking tools, (3) digital lifestyles, and (4) learning research. The "four forces are simultaneously creating the need for new forms of learning in the 21st century and supplying the tools, environments, and guiding principles required to support 21st century learning practices" (pp. 21, 23).

Knowledge workers, or those that know what is needed in the workplace and how the workplace must operate, is critical to the success of graduates especially in workplaces in which change is constant and requires the worker to adapt to the changing times such as in teaching and in science, technology, engineering, and mathematics (STEM) positions. Thinking tools include

smartphones, desktop computers, laptops, netbooks, tablets, emails, texts, tweets, and physical and electronic storage devices. These tools are the mainstay of 21st century learners and help us remember information rather than memorize information. The digital lifestyles of these learners differ markedly from their parents' and grandparents' lifestyles as they are never without immediate access to information through Facebook, Twitter, the Internet, and so on. They watch movies on their digital devices and manipulate information in a much more efficient manner than previous generations. Learning research has demonstrated that people learn differently now than they did decades ago and we now know more about how people learn, primarily through constructivist researchers, than we did before. That is, we know the importance of authentic and contextual learning, how people build mental models, the use of internal motivation and rise of emotional intelligence, how intelligence is described from multiple perspectives, and the impact of social learning (Trilling & Fadel, 2009). All four of these converging forces on 21st century learning affect teacher education in a direct manner since the primary clientele is the 21st learner.

As board members of the Partnership for 21st Century Skills, Trilling and Fadel expanded on the 21st century framework by arguing that there are seven key skills (the 7 Cs) promoted by the framework: (1) critical thinking and problem solving, (2) creativity and innovation, (3) collaboration, teamwork, and leadership, (4) cross-cultural understanding, (5) communications, information, and media literacy, (6) computing and ICT literacy, and (7) career and learning self-reliance. They further point out that if you take the three foundational skills of reading, writing, and arithmetic (the 3 Rs) and multiple them by the seven key 21st century skills, you have 21 which is an easy and informative way to remember the importance of blended foundational skills with distinct skills to make up the 21st century learner. Teacher education program would be well placed to teach and encourage the seven since the foundational three form the focus of any teacher education program.

The British Columbia Premier's Technology Council (2010) argued that change will occur quickly in the next decade and, more importantly to teacher education, change will be grounded in personalized learning in which the learners will have clear choice in their educations and will pursue different paths to learning. Similar to the Partnership for 21st Century Skills (2009) and Trilling and Fadel (2009), the authors point out that learners will need to master set skills and attributes to be successful in the chosen workplaces: (1) functional literacy, (2) critical thinking and problem-solving, (3) creativity and innovation, (4) technological literacy, (4) communications and media literacy, (5) collaboration and teamwork, (6) personal organization, motivation, self-regulation, and adaptability, and (7) ethics, civic responsibility, and cross-cultural awareness. Heavily influenced by the work of Sir Kenneth Robinson, the province of British Columbia has embraced personalized learning and has encouraged teachers to provide opportunities for students to choose multiple ways of knowing and showing knowledge in relation to these seven skills and attributes. The Premier's Technology Council (2010) pointed out that the tenets of such a proposed system would include a flexible educational path, a blended system of face-to-face (f-2-f) and online learning, access to learning objects and teaching tools, open access to information systems available off- and on-line, constant feedback and assessment that draws on standards that will be higher than they presently are (pp. 3-4). If these students are educated through personalized learning that stresses 21st century skills, teacher education programs will need to ensure that their teacher-candidates are both taught in this manner and trained to teach in this manner.

Drawing on his earlier work, Prensky (2010) argued that one way to view the teaching and learning process with digital natives, or 21st century learners, is to understand the difference between verbs and nouns. The former includes the skills that student should possess like understanding and communicating which change very little over time as evidenced by Bloom's Taxonomy and its revised form whereas the latter are the actual tools that we use to assist in the

learning process such as PowerPoint or WebQuests which change at a rapid rate. His central argument is that we can merge effectively these verbs and nouns and accommodate the students' diverse learning styles through *partnering.* Partnering involves "letting students focus on the part of the learning process that they can do best, and letting teachers focus on the part of the learning process that they can do best" (p. 12). Practical suggestions for the students include students finding out information rather than taking notes from the board, researching and creating information from diverse sources, learning about what constitutes quality and rigor from the teacher, and refining and improving output based on multiple views. Suggestions for the teacher revolve around changing from the all-knowing to the let's-find-out-together coach and include asking key questions to generate discussion, suggesting (but not prescribing) topics and tools, learning about technology from the students and incorporating it into teaching, and evaluating the students' output for quality and rigor. The potential for technology partnering is obvious. If students are familiar with the plethora of technological tools available to them and are free to utilize the technology to meet their own interests with guidance from the teacher, they will be much more motivated to produce exceptional output. Prensky's work with thousands of digital natives and his reporting of successful models across the world demonstrate that this new pedagogy has great potential in the teaching and learning of the new generation of students.

Tapscott (2009) stressed that the new Net Generation. 21st century, teacher should consider the learning styles of his or her students. In particular, he purports that four fundamental shifts need to occur. First, the teacher needs to take the focus off himself or herself and focus on the students. This means a change from a one-way transmission model to a two-way interactive model. Second, the teacher should change from a sage on the stage to a guide on the side. That is, the teacher needs to be one who encourages discovery in the students and assists students in finding multiple ways to pose questions and get answers in a highly collaborative manner. Third, the philosophy of education needs to be altered so that the model is not one-size-fits-all but rather one-size-fits-one (Tapscott 2009). The students come to school with distinct learning styles that need to be accommodated and optimized rather than having the teacher teach in one way. Rather the teacher could encourage the students to discuss how they believe that they can best show their knowledge while still maintaining the integrity of the project under consideration. These ways of knowing could range from podcasts and video productions to written essays and oral presentations. Lastly, learning needs to be collaborative rather than individualistic. In the past, each learner was taught and tested based on the knowledge that the teacher broadcaster. The Net Generation views learning as collaborative in that they observe each other, challenge views, experiment with other alternatives, and make projects together. Social media is one clear environment in which students thrive as it is truly collaborative.

Evers, Lang, and Smith (2009) reported on their innovative use of anchoring alphabet texts and pairing the student stories with effective technology. The literacy journey began in Grade One where Lang introduced a predictable book and had the students practice their oral and written language using a scaffolding approach. Eventually the students produced a book that outlined pertinent information about themselves which were accompanied by digital photos of each student. Working with her Grade Five students, Smith continued the process by having her students create PowerPoint slides that provided details about themselves augmented with digital photos and Internet images with narration for each slide. Lang's Grade Eight students used the ABC PowerPoint format to research, write about, and present information on their chosen topics. Across all three grade levels, the common Digital Native elements of collaboration and problem solving were evident.

Following up on her 2009 article on the new generation of students, Martinez (2010) pointed out that the new generation of teachers will change schools. In 2009, she argued that the new generation of students are, indeed, smart as they understand the value of collaboration and co-creation and eschew top-down, one-way transmission models (Martinez, 2009). In her follow-up

article, she stressed that power and potential of social media for teachers to meet the needs of the Net Generation. In particular, she discussed the myriad opportunities to design, change, and collaborate through the use of open educational resources (OER). These resources include course materials such as lesson plans and handouts and course modules such as videos and podcasts. This form of media would have a clear impact on the Digital Natives as it accommodates their learning styles and allows for just-in-time instruction.

Leadbetter (2008) pointed out that 21st century learning and personalized learning are integrated into each other. Reporting on a number of innovation schools in the United Kingdom, he argued that the schools under study had common characteristics by changing seven elements of learning. First, they changed the timing of the learning so that it occurred when it need to occur rather than when the curriculum indicated that a change must be implemented. Pacing of learning was changed so some students moved ahead of their peers while some needed more time to master the concepts. They made changes to the settings for learning so that rooms and buildings were renovated or built to become more conducive to collaborative learning, small- and large-group discussions, and individualized learning. When alterations to styles of learning, such as direct instruction or independent learning, were made, the students tended to learn better and more. The schools also implemented changes in support for learning by bringing in expertise from community member, parents, teaching assistants, and support staff. The aims of learning were altered so that the curriculum development concentrated on the social and learning capabilities of the students rather than a distanced curriculum. Lastly, the schools implemented technologies for learning that included laptops, computers, wikis, blogs, and learning objects.

The Paul Hamlyn Foundation and the Innovation Unit (2008) conducted a three-phase research project to investigate innovation and "next practice" pedagogies in schools; that is, practices that are possibly more potent and effective than present practices. They concluded that schools needed learning which was deep, authentic, and motivational. Deep learning involves reflection, metacognition, and going beyond the course requirements; Authentic learning brings in real-world contexts and is learning that is meaningful to the students. Motivational learning is learning that stresses task and goal orientation, and that promotes further learning. Drawing on their experiences and research, the authors argued that there were two integral learning dimensions that included deep, authentic, and motivational: engagement and integration. Engagement is drawing in the students and "is built [on] a commitment to creating learning programmes which are both **relevant** to young people's lives and their interests, and **co-constructed** with them" (p. 10, original emphasis). Integration must include multiple opportunities for learning "so the challenge for educators is to personalize learning **in/out of school** and accommodate a range of learning modes… The **learner/teacher mix** can include locally-sourced experts, college lecturers, parents, and most importantly, the students themselves as leaders" (p. 10, original emphasis).

In their book, Palfry and Gasser (2008) purported that the digital native has a different relationship with the influences in his or her life. The authors presented a diagram that involves a series of concentric circles to capture the depth of role for each of the major influences played. The center is the digital native who is surrounded by friends and family, then teachers, coaches, and mentors, followed by trusted companies and software providers, and on the outside ring, the state and law enforcement. Given the strong role that friends play and the digital native's penchant for social networking, it is incumbent upon teachers to use the strength of social media to address the learning needs of their students.

This brief literature review has demonstrated that knowledge must be distributed across many individuals and places and cannot be attributed to or held by one person, such as a teacher. In 21st century learning schools, colleges, and universities, from the administrator to the custodian, all elements of 21st century learning must be encouraged so that learning occurs in all aspects of the

school. Paramount to the learning process is student achievement but the paths to that content mastery are varied and include utilizing expert and novice knowledge, Web 2.0 technologies, and multiple ways of knowing and presenting knowledge.

Practical Ideas

Heeding the extent literature, there are several broad practical ideas that can be utilized to teach 21st century learners. These ideas are meant to be suggestive rather than prescriptive so that readers can take the idea and adopt or adapt it to their present situations. To contextualize the suggestion, examples from the field have been used.

Use wikis and blogs as collaborative tools

The potential for using wikis and blogs in the classroom is clear (Knobel & Lankshear, 2009). The 21st century learners prefer to collaborate and co-create so it makes infinite sense to use these social media tools while teaching. The wikis allow for co-creation as each student can add or subtract from the discussion and the wiki can be as public or private as the students or teacher want. Blogs also allow for co-creation but the collaboration and discussion engendered in the platform make blogs a natural choice for teachers and students alike.

Kathy Cassidy from Moose Jaw, Canada had created a wiki for her Grade 1/2 students who wanted to know what a thousand names would look like. The class invited children and adults from around the world to post their name and age on the wiki so that all viewers could see how that large number of names (1537 at the time of writing) would look and to see the power of collaboration and co-creation using social media. For another project, the students wrote a collaborative story about hockey which was written and contributed to by all members of the class. It is no longer used by her students as they have moved on to the next grades; however, all students have continued to add to the story so it bears little resemblance to the original. It does demonstrate the draw and power of on-line collaborative tools.

Controlled access to the Internet

Many school districts worry that mobile learning opportunities are not worth the risk because students would have open access to the Internet or would download music while the teachers is instructing. By controlling access to the Internet, the teacher can create opportunities for learning without worrying about unlimited access to the World Wide Web.

The Nisga'a School District in northern British Columbia, Canada has created a project entitled Nisga'a on Wireless (NOW) that places a laptop computer in front of all students in Grades 4 to 12. Most classrooms are equipped with interactive whiteboards and all classrooms have the capability of teachers' monitoring the students' laptops. The teachers can control how much access the students get to the internet and can even limit certain students from specific programs. The students demonstrate that they can handle unlimited access to the Internet which allows the teachers to use web-based resources to their maximum potentials.

Encourage students to tinker

Tapscott argued that encouraging students to tinker will address their learning strengths as they enjoy playing with learning objects and projects. This form of tinkering involves social and virtual tinkering rather than mechanical tinkering. By deconstructing and constructing while

discussing their ideas with each other, the students tend to produce better and stronger projects from websites to math manipulatives to research essays.

The Richard S. Fowler Catholic Junior High School in Edmonton, Canada has proposed the Power Up To Learn (PU2L) project in which they will become a lighthouse school for technology as the teachers will infuse technology into the curriculum. The students will be able to tinker through social networking and virtual projects. All students will receive controlled access to laptops and iPods for specific lessons. Additionally, there will be a video conferencing suite so that teachers and students can meet other students and researchers to learn outside the four walls of the school. The students will also have myriad apps installed on their iPods from NASA to the periodic table of elements to planetary and solar system to social studies maps. In this way, the students will have plenty of opportunities to tinker with the technology in social settings.

Embrace mobile learning opportunities

Both Tapscott and Prensky provide lucid arguments for embracing mobile learning as a way of addressing the needs of the digital natives or Net Generation. In Tapscott's study of over 11, 000 students of varying ages, he found that an overwhelming majority used m-learning as the primary means of getting and disseminating information. They also yearned for more mobile learning opportunities in their classrooms so that collaboration through digital technologies could be embraced by their educators. Prensky (2010) provided over 30 pages of suggestions for partnering technological tools in the classroom. For instances, rather than banning cell phones in the classroom, he states that they should be embraced by teachers for their potential in social networking, text and on-screen readers, and cell phone novels.

For the 2010-2011 school year, the Sweetwater County School District (Wyoming) integrated iPod Touch and iPad units in their schools through the librarians as media specialists. They used the units for fluency (recordings), podcasting, e-books, "apps" for instruction, interventions (Tier 1 students), and enrichment, along with the traditional uses like word processing and Internet searches. Each student or group completed two media-based research projects in their iPods or iPads during the school year. They also kept a digital reflective journal on the units that discussed their experiences during media time or Language Arts lessons. Lastly, they used specific "apps" and/or e-books on their iPods or iPads to gain new knowledge or to review skills for enrichment or intervention.

Focused Social Monogamy

One of the complaints from high school teachers, in particular, is that students are always texting or surfing during their lectures and discussions. Although discussion, critical thinking, problem-solving, and so forth can be encouraged through the use of smartphones, the issue of time-on-task is a concern for teachers.

One teacher, Ian, discusses, what I have termed, *focused social monogamy* with his students. That is, while he is lecturing or explaining a point, each student has a relationship of fidelity with him for the set period of time. He expects them to be faithful and respectful but encourages them to use their smartphones, Ipads, and netbooks when he is not teaching directly. He acknowledges that the students are 21st century learners and that they are different than students whom he taught years ago. He embraces social media with students and provides opportunities for the students to use Facebook, Twitter, Wikipedia, and so forth as long as they accept his focused social monogamy offer. To date, this relationship has worked very well.

Conclusion

Teaching 21st century learners is a challenge for educators as it definitely can disrupt class as we see how technology is changing the way our students learn (Christensen, Horn, & Johnson 2008). The students learn differently now than when many of their teachers were in school and the pedagogy must change if we hope to meet the students' needs. Many educators and teachers are, in fact, members of the Net Generation so the transition to new technology-based pedagogies might be easier but any change is painful. These students have distinct learning styles and need to learn through collaboration, co-creation, and social networking and they need professors and teachers who guide and coach rather than top-down, authoritarian educators. The mobile age holds much promise for these 21st century students and we need to rise to the challenge by embracing mobile learning opportunities and to get out of the stone-age institutions.

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Teacher as Researcher: An Essential Component of Teacher Preparation

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Abstract

This article provides a brief synthesis of research findings from studies of teacher education programs that include attention to teacher research. It then details findings from a study of beginning teachers who learned about and conducted teacher research in their preservice M.A.T. program. Surveys and follow-up interviews show that these beginning teachers (2-6 years in the field) utilize a variety of research strategies, and the data from their classroom inquiry informs and sustains their work. Teacher research is more than just a requirement of their teacher preparation program; it is an essential habit of their classroom practice.

Teacher quality is a hot topic for politicians, parents, students, educators, and community members. The relationship between teacher quality and teacher preparation is under scrutiny. What do teachers need to know? What is the best way to support this knowledge development? How do we ensure that teachers are prepared to educate 21st century learners? In the midst of conversations about multiple routes into teaching, school-based residency programs, and greater attention to clinical practice, one curriculum trend is receiving attention: teachers as researchers. The assumption is that "teachers need to gather, interpret, and use data about students' learning and other aspects of teaching, learning, and schooling to continually rethink and improve their teaching practice." This focus on teacher research is not new to teacher education. A number of education researchers have written about the need for teacher research as part of beginning teacher preparation programs (Graham & Hudson-Ross, 1999; Kosnick, 2000; Monroe, Gali, Swope, & Perreira, 2007; Moore, 1999b; Ostorga & Lopez, 2009).

This research recognizes that teacher researchers are uniquely positioned to provide an insider's view that "makes visible the way that students and teachers together construct knowledge and curriculum" (Cochran-Smith & Lytle, 1993, p. 43). John Dewey (1929) noted the value of teacher research, "It seems to me that the contributions that might come from classroom teachers are a comparatively neglected field; or to change the metaphor, an almost unworked mine…." (p. 17). Teacher research supports "a different theory of knowledge for teaching—one in which teachers are among those who are knowers" (Cochran-Smith & Lytle, 1993, p. 61). Several features define or explain teacher research:

> (a) teacher researchers have an insider, or emic perspective; (b) they mix theory and practice (praxis) while teaching and researching within their classroom worlds; (c) teacher research is pragmatic and goal-oriented—there are practical classroom problems that need to be solved; and (d) teacher research involves disciplined inquiry (Shulman, 1997) which means that studies are intentional and systematically conducted (Baumann & Duffy, 2001, p. 611).

My synthesis of studies that examine teacher preparation programs that include attention to teacher research finds that graduates of these programs:

- Acquired a variety of knowledge about teaching and curriculum (Baumann & Duffy,

2001; Kosnick, 2000; McEwan, Field, Kawamoto & Among, 1997; Moore, 1999a; Rock & Levin, 2002).

• Explored their sense of self as teacher (Rock & Levin, 2002).

• Gained awareness of their students, including knowledge of their students' perspectives and learning needs (Duffield & Townsend, 1999; Kosnick, 2000; Moore, 1999a; Rock & Levin, 2002).

• Clarified their personal theories of teaching (Baumann & Duffy, 2001; Monroe, Gali, Swope & Perreira, 2007; Moore, 1999a; Ostorga & Lopez, 2009; Rock & Levin, 2002).

• Gained awareness of and appreciation for the processes of inquiry, reflection, action, and change as roles of a professional teacher (Kosnick, 2000; McEwan et. al, 1997; Monroe, Gali, Swope & Perreira, 2007; Ostorga & Lopez, 2009; Moore, 1999a; Rock & Levin, 2002).

Despite these findings, teacher research has not been a standard curriculum component of most teacher preparation programs. But with the increased emphasis on teacher preparation, there is growing interest in teachers conducting their own classroom research. "Teachers as Researchers" was noted as a new direction for teacher preparation in *Educational Leadership* (Cochran-Smith & Power, 2010, p. 11). Several examples were noted, including the University of New Hampshire's preparation program, "in which teacher candidates complete a yearlong internship in a school, generating questions, gathering student learning data, and modifying curriculum and instruction on the basis of this data" (p. 11).

For the past ten years, my work as a teacher educator has focused on preparing beginning teachers to be researchers in their own classrooms. Preservice teacher candidates in our Middle School/ High School M.A.T. program are introduced to teacher research through a number of activities that span several courses. Specifically, M.A.T. candidates explore literacy through the lens of teacher research by taking field notes at their internship sites, spending a day shadowing a student, and then selecting one student to focus on for a literacy case study. Case studies are presented to preservice colleagues at a roundtable session in late fall. Candidates also read examples of teacher research in the Language Arts methods course. During the fall of their yearlong internship, candidates develop data collection skills. Candidates build on this effort in the spring by collecting data on one class they are teaching as part of their continued internship. Candidates collect data about student learning based on classroom observations, their own reflections on lesson plans and classroom practice, and student work, including formative and summative assessments. Attention is paid to noting patterns they observe and using these patterns to inform their planning and to develop assessments to check students' understanding. Candidates then write up their findings, including the data, their analysis, and their findings regarding student learning as well as a reflection on what candidates learned about their own teaching. A second cycle of data collection, analysis, and a write up of findings follows. In addition to their own research, candidates see teacher research modeled by professors, and graduates of the program present the research they are doing as beginning teachers.

As noted above, although there are studies of teacher research as part of teacher preparation, they are limited. And there are even fewer studies that follow graduates into the field to see if they continue to conduct teacher research in support of their classroom practice. Kosnick (2000) found that teachers who were introduced to teacher research as part of their preservice teacher education continue to be teacher researchers in their first year of teaching. Gilbert and Smith (2003) studied a graduate teacher-induction program, which involved novice and practicing teachers in teacher research. They found that three years out of the program, four

former novices, out of 15, were doing teacher research as a response to classroom dilemmas. These studies of teacher researchers beyond their preparation program are promising but further studies are needed.

A Follow-up Study of Beginning Teacher Researchers and Teacher Research

This study was designed to explore the question: What is the impact of learning about teacher research as part of their preservice program on middle school/high school language arts teachers in their beginning years of teaching?

The design for this research was qualitative, although there were Likert scale questions in the survey (described below). Qualitative methods were appropriate for the study given its focus on exploring participants' perspectives on their own understanding and use of qualitative research strategies as teacher researchers. The qualitative approach was also appropriate given that the majority of the literature on teacher research utilizes qualitative research methods. A qualitative approach also emphasized my researcher's role as an "active learner who can tell the story from the participant's point of view rather than an 'expert' who passes judgment on participants" (Creswell, 1998, p. 18).

The data collection methods for this study were the following: a survey (with Likert scale and open-ended questions), interviews, and examples of participants' teacher research (artifacts). Tracking down graduates to conduct this follow-up study proved challenging. But I was able to locate 47 graduates with 2-6 years of teaching experience and send them a teacher research survey. From this group, 29 returned the survey. I then selected 8 survey participants who had indicated their willingness to do follow-up interviews. I looked for gender balance and interviewees who worked in a variety of school districts: suburban, urban, rural, and one small private school. I also wanted a mix of middle school and high school interviewees.

Data was analyzed based on interpretative and collaborative approaches. Likert scale questions were tallied, and open-ended questions were read, analyzed, and coded. These codes were then checked during interviews with participants and examples of their teacher research artifacts were examined to describe and explain how teachers used teacher research data to construct knowledge that informed their practice. I took notes during the interviews and I also transcribed the audio from interviews. Data were also examined to determine attitudes and understanding regarding teacher research and research strategies. These data collection and analysis methods provided a detailed, complex, holistic picture of whether, how, and why teachers are using teacher research in their classroom practice.

I recognize concerns about subjectivity I am a teacher researcher, and I was researching work I did with candidates in support of teacher research as well as the work of my colleagues. I know the survey and interview participants. I am invested in finding out how teacher research informs teachers' efforts. "We cross borders, but we don't erase them; we take our borders with us" (Behar, 1993, p. 320). My "borders" were and are intertwined with other teachers and college faculty in this field of study, which could lead me to only find data that supports my own beliefs about the value of teacher research. Being aware of my subjectivity helped me monitor my data collection and my analysis. I was committed to looking closely so that I could see what I did not first see; I checked to see that I had not made less of something because it contradicted my own views of teacher research. I routinely asked questions of myself: "What questions have I avoided? Who have I have not seen? With whom do I have a special relationship and how does this affect my interpretation? What data have I not collected? What might I ask to provide

additional insights?" (Glesne, 1999).

Teacher Research as a Habit of Practice

All 29 participants who returned the survey indicated they conduct teacher research. Participants reported that their primary data collection methods are classroom observations, reflections/notes on lesson plans, and students' classroom work. These methods are used daily or weekly. Interviews with survey participants provided me with examples of these data collection methods. I saw descriptions of classroom interactions, which included what teachers saw and heard. Lesson plans included notes regarding changes made during the lesson as well as after the lesson reflections. Often this led to a list of what worked well/less well. And interviewees showed me the various ways they analyze student work. These include keeping a running list of strengths and areas that need further attention as they read students' work, analyzing assessments by noting which questions or concepts are most often missed, making a chart based on students' understanding of literary elements, and making copies of student work and highlighting examples to share with the students.

In addition, graduates noted the once-or twice-a-year use of student surveys and sociograms (data on social relationships in the classroom). Student interviews were also noted as a once-or twice-a-year data collection method. This contrasts with data from interviews, in which interviewees reported the importance of one-on-one conversations with students. Further questioning revealed that interviewees contrasted these conversations with students as different from an interview, which they considered more formal. A second year teacher described how she conducts interviews with her students before parent conferences and uses this data as well as the self-evaluation survey students complete to inform her understanding of each student as a learner. She then shares this data with parents. She also notes the role of informal interviews, quick check-in talks in the hallway or during class—as another data source.

The use of "informal" vs. "formal" also came up with regard to case studies. Survey participants indicated they did not conduct "formal" case studies, like the ones they did in their M.A.T. program, but 30% of survey participants reported they did "informal" case studies at least once per year. These studies consisted of being intentional in their focus on a student they wanted to better understand, including conducting an interview, analyzing the student's work, and checking in with the student about the data they collected.

I was surprised to see that only 41% of the survey participants listed exit notes as a regular (weekly) data collection tools. This was a research strategy modeled in the M.A.T. program. I do note that another 31% listed "exit notes" as a monthly tool. In follow-up interviews, several teacher researchers shared how they use exit notes to check students' understanding and to gather data about what is working well/less well in the class.

Survey participants also noted their use of data from state scoring guides, eavesdropping during student work sessions, notes taken during student discussions, students' self-evaluation of work, and conversations with colleagues about specific students.

I was also struck by the role of e-mail as a teacher research tool. I did not include this in my survey but several participants listed e-mail exchanges with parents as a way to gather data. One survey participant wrote, "Responses from parents to my weekly e-mails, outlining what we did in class, provide rich information." An interviewee, with five years of teaching experience, noted her appreciation for the e-mail exchanges she has with parents. She, too, sends a weekly e-mail with bullet points about the class. She values the comments and details about conversations

that happen at home, as well as insights regarding individual students. She is also grateful for the thank you e-mails. She keeps these thank you e-mails in her "Why I Teach File." (See more on affirmation in the section labeled Teacher Research as Affirmation/Confirmation.) She did note that there is a downside to this weekly e-mail correspondence. It gives "helicopter parents" more reasons to contact her about their child and his/his grade and performance.

Graduates' responses demonstrate that teacher research is not an add-on; it is an essential part of their teaching practice. As one participant noted, "I don't think about 'research' very much because it's ingrained in what I do. Just about every activity or happening in the classroom is some kind of research….I would say that research is a necessity—like air or water. You cannot live (as a teacher) without it."

But is this Teacher Research or Just Good Teaching Practice?

A number of participants were cautious about describing themselves as teacher researchers. They used the qualifier "informal" in characterizing their research. One interviewee reported she had to look up "teacher research" before she completed the survey because she wasn't sure she really did it. But in describing their inquiry efforts, participants provided compelling evidence that they were "systematic and intentional" in their inquiry (Cochran-Smith & Lytle, 1993, 1999). They had systems for writing down observations of students, including creating a section for student observations in their daily lesson plans or keeping a notebook with a section for student observations. One interviewee shared the journal in which she notes what she hears during students' group work sessions. Another shared her spiral notebook, which included notes on students' behavior, a list of students who were struggling to read the required novel, and summaries of her one-one-check-ins with students. She keeps a spiral notebook of data for each class. Participants also described how they make notes of patterns as they evaluate student work and use this data to chart students' learning, to design follow-up lessons to address misconceptions or errors, to refine/redesign the unit before they teach it again, and to identify differentiation strategies that would support the diverse learners in their classrooms. They described their follow-up efforts with students to check the patterns they were seeing, which included conducting interviews and surveys, and sharing the patterns they observed in students' work with students—individually and with the entire class.

Survey participants listed at least one research question that resulted from their initial data collection. In some cases participants researched the same question in every class period for a semester or even a year. One beginning teacher has been trying out and researching grading strategies for the past three years. In other cases, they had multiple research questions they were exploring for varied lengths of time. Participants were candid about the discoveries that resulted from researching their questions. For example, the routine of daily writing prompts helps sixth graders become more comfortable with writing. A prompt about *scars* was the favorite of this group. A high school teacher in her second year discovered that allowing her students to listen to their ipods supported their writing. This required challenging a school rule about no ipods in the classroom.

Several interviewees volunteered that teacher research is not the common practice of their colleagues. And this is becoming even more the case as school districts emphasize test score data over classroom data from teachers. But this has not deterred participants from continuing to conduct teacher research. In the words of one survey participant, "It helps me think through and rethink lesson and units based on what I see from my students—not what outside sources say I

should be doing in my classroom." Another graduate noted, "The kids get their feedback, their grade, but with teacher research I also learn so much that helps me plan the next steps." The graduates in this study demonstrate that they use teacher research to understand their students and improve their practice in specific concrete ways (Hubbard & Power, 1999).

Specifically, participants noted their use of teacher research to know their students; this was their primary use of data. They also commented on the use of data in support of curriculum development, and the power of teacher research to affirm/confirm their practice as teachers. Each of these categories is explored below.

Teacher Research to Know/Support Students

Survey participants noted the importance of students as research data, "Students are the best resources for what's happening (and what's possible) in the classroom. Teacher research invites, requires their voices." Likert scale survey data show the following:

- 100% Agree or Strongly Agree that "teacher research supports my knowledge of students.
- 86% Agree or Strongly Agree that they "use teacher research to know their students as readers."
- 100% Agree or Strongly Agree that they use "teacher research to know their students as writers."
- 96% Agree or Strongly Agree that they use" teacher research to know their students as learners."

Participants also recognize the importance of teacher research data to check their assumptions about student learning (96% Agree or Strongly Agree). One interview participant noted the importance of "eavesdropping" during group work to check students' understanding and on-task behavior. Another described the use of open-ended questions to solicit student feedback. A survey participant described teacher research as "a way to hear the pulse of my students' learning."

An interview participant shared an epiphany she had regarding reading instruction. She had been reading aloud to a group of middle school students targeted as struggling readers. She knew the research about the importance of kids following along in the text as they listened to develop fluency. But her students were "fighting her tooth and nail." Their resistance to following along in the text as she read surprised her. When she asked her students for feedback, they informed her that "she was reading too fast so they could not follow along." She realized that this group of readers needed more time to decode and comprehend, and if they got lost, they could not find where she was in the text. So she slowed down her reading. And she found that projecting a copy of the text and asking a good reader to model where he/she was in the text by using a sheet of paper to track his or her reading supported her students. She also gave them choice as to whether they wanted to follow along, recognizing that not all students benefited from tracking the text. She noted the importance of asking why instead of making assumptions that students just didn't want to do what was being asked.

Taking time to check-in changes the relationship between teacher and student. Over and over participants described how teacher research helps them connect with their students. They tout the use of dialogue journals and letters in support of written conversations. One interviewee commented on the value of daily dialogue journals, "Kids share details about their personal lives and they will tell me if they don't get something." Interview participants also value the one-on-

one conferences they have with students: to check in, to check understanding, to provide instruction, and to demonstrate that each student matters. As one interviewee noted, "Check-in conferences make every student feel visible." Another summarizes, "I find building relationships with students opens me up to teacher research…. If you see students as human beings, you cannot help but try and seek ways to support them through teacher research."

Teacher Research in Support of Curriculum Development

Data from student dialogue journals/letters, check-in conferences, as well as classroom observations, and close analyses of students' work, provide insights that support curriculum development. Survey results indicate that 79% of participants Agree or Strongly Agree that "teacher research supports my knowledge of curriculum." The survey results also show:

- 86% use teacher research to assess/analyze curriculum materials.
- 93% use teacher research to analyze curriculum planning.

Interview participants spoke of teacher research in support of ongoing curriculum development and instruction. A third year teacher described how she keeps a running list of patterns she sees in student work. She uses this list to develop minilessons. Another interviewee shared the story of reading essay exams and realizing her students did not know how to use a thesis statement. She made a note and addressed this in her next unit. Two interviewees shared their habit of making note, often on sticky notes, of errors they observe in students' writing, such as apostrophes in contractions. They use this data to develop and teach minilessons.

Participants also spoke to teacher research in support of unit planning. A third year teacher interviewee described how she uses her lesson plans as a place to make notes on what she sees and hears. She looks back at these notes in support of future planning. And she keeps all of her unit plans, along with lists of what worked well/less well and ideas she wants to try. Another commented, "I rely on teacher research to adapt my practice. I am always looking back and trying to make new mistakes as I go forward."

I was pleased to see a number of survey participants and several interviewees tout the importance of doing the assignments they ask their students to do. I model this and stress its importance during the M.A.T. program. One survey participant, a second year teacher, wrote, "I do every project I ask the students to do (including long essays) to make sure it's valuable and worthwhile. I also take every test I give." A second year teacher I interviewed also spoke to the importance of doing the work she assigns to students. She finds, "It shows me if the work is too hard or too easy. And it shows kids the work is valuable because I've done it."

Several participants described their research of technology use in their classroom practice, including blogs, online discussions, literary responses on Facebook, podcasts, and wikibooks. They noted the pressure they feel to incorporate technology in support of 21st century learning. Teacher research provides them with data to speak to the benefits but also the challenges of technology in their classroom. As one teacher discovered, the online textbook she was strongly encouraged to use with her middle school students was not the best tool for every student. She learned this when a student blurted out, "I can't think with all this stuff on the screen!" Another participant described her plan to share her teacher research findings with the principal about technology mandates from the district that were working well but also those that were not serving her students well.

A survey participant summarized the role of teacher research in her practice as follows:

"Teacher research gives you evidence that allows you to test your hypothesis about why something in your classroom either is or is not working. Then, like any analyst or scientist you can go back, tweak your experiment, and find new evidence that allows you to change or support your hypothesis or practice. In an exceedingly subjective, emotion-filled profession research can be a very objective measurement of accomplishments, which we all need."

Teacher Research as Affirmation/Confirmation

Survey participants and interviewees noted their use of teacher research to evaluate their classroom practice and their identity as a teacher:

- 93% of survey participants indicated they use teacher research to analyze/reflect on their teaching.
- 96% agreed that teacher research supported their knowledge of self as a teacher.

And teacher research data allows them to see how what they are doing as teachers makes a difference in the lives and learning of their students.

One interviewee commented on the affirmation he felt after reading his ninth-grade students self-evaluations. Another interviewee commented that teacher research "keeps her energized and focused on what her kids need."

A second year teacher commented, "When you have data that students are connecting—that a book works—it's like fireworks!"

Another interviewee noted that she makes time for teacher research because it affirms her work but she also shares her findings with students to affirm their role in her classroom practice and celebrate their learning. She notes, "School is a learning enterprise and we need to show this to students."

Conclusions and Implications

The classroom research being conducted by the teachers in this study serves as compelling evidence that the introduction of teacher research in their preservice program instilled in these teachers the habit of classroom inquiry. They observe, interview, collect, analyze, assess, question, adjust, and reflect. When faced with the myriad of challenges that confront beginning teachers and the culture of schools that discourage inquiry, rather than abandon what they learned about teacher research in their preservice program, these beginning teachers draw on teacher research to inform and support their work. This finding stands in contrast to literature that preservice teacher education is washed out by the culture of schools (e.g. Feiman-Nemser, 2001; Nagel, Golez, Nieto, & Whitney, 1999).

Although the beginning teachers in this study describe the challenges of teacher research, they do not view teacher research as an add-on; rather, it is a routine responsibility. They view "learning from teaching as an integral part of the activity of teaching" (Cochran-Smith & Lytle, 1993, p. 63).

Teacher research also provides a "critical basis for decisions about practices" (Cochran-Smith & Lytle, 1993, p. 63). The beginning teacher researchers in this study demonstrate that teacher research provides "firsthand, everyday data on how to initiate optimal learning environments within complex social settings, characterized by a variety of learning differences and needs" (Hubbard & Power, 1999). Data from teacher research provides information to confirm or to call into question classroom practices, teaching methods, curriculum materials, assessment strategies, and even school polices. Teacher research provides information that can

be used immediately to change classroom practice. As one interview participant noted, "Teacher research is not abstract—use this in six years. It's information you could use tomorrow. Immediate information."

Implications for Preservice Teacher Education

For teacher research to become part of preservice teacher education, teacher educators and the structure of preservice education needs to change. To teach teacher research, teacher educators will need to know and understand teacher research. Their own experiences with qualitative research will support this effort, but being teacher researchers themselves—doing teacher research—would allow them to model teacher research as an integral part of teaching practice. A commitment to teacher research as teacher educators is consistent with self-study, the term used for teacher research conducted by teacher educators. Kenneth Zeichner (1998) claimed during his vice-presidential address to the American Educational Research Association Annual Meeting that "the birth of self-study in the teacher education movement around 1990, has been probably the single most significant development ever in the field of teacher education research" (p. 19). He went on to note, "This disciplined and systematic inquiry in one's own teaching practice…provides a model for prospective teachers of the kind of inquiry that more and more teacher educators are hoping their students employ" (p. 41). As teacher educators we cannot advocate an approach to teaching that we do not practice ourselves. Interview participants in this study cited the modeling of teacher research by professors as a significant factor in their learning about teacher research.

In addition to being teacher researchers themselves, teacher educators need to provide preservice teachers with examples of practicing teacher researchers within their disciplines. Participants in this study spoke to the importance of reading the work of teacher researchers. Inviting beginning teacher researchers into teacher education classes to share how teacher research is an integral part of their teaching practice is also beneficial to preservice teachers. It serves to remind and reinforce for beginning teachers the important work they do as teacher researchers.

Teacher education programs will also need to examine how their current practicum expectations allow for and support teacher research. Many teacher education programs send preservice teachers into the schools to take on full-time teaching responsibilities almost upon arrival. The focus of these practica is on learning by doing. Dewey (1904) warns that this learn by doing approach leads to mediocre proficiency. He calls instead for time spent observing, learning to be "students of teaching." Only after time spent observing—as students of teaching—should preservice teachers take on teaching responsibilities. And this taking on of responsibilities should be gradual, beginning with one-on-one and small group teaching, followed by whole lessons, but just a few at a time—with support from a mentor teacher. Throughout these efforts, beginning teachers would be learning to collect and analyze data. Teacher research would be seen as an integral part of the practice of teaching, the very foundation of teaching practice. Only after they had honed their skills as teacher researchers would preservice teachers be ready to take on the daily rigors of a classroom, and again this experience should have limits on it, such as a reduced teaching load to allow for a continued focus on teacher research. Participants in this study spoke to the importance of being given time and support to conduct teacher research.

Implications of Teacher Research to Inform the Knowledge Base for Teaching

Teacher research can expand the knowledge base of teaching by including the research findings of classroom teachers. Unlike other professions, the best practices of practitioners are lost to current and future colleagues. "Teaching is conducted without an audience of peers. It is devoid of a history of practice" (Shulman, 1987, p. 12). Teacher research can illuminate what teachers know and help to create a history of practice.

Teacher research should inform the work of teacher educators regarding what teachers need to know to teach. Teacher research should also be part of debates regarding teacher preparation and quality—keeping the focus on the complexities of teaching and why teachers need to inquire about such in contrast to efforts to reduce teaching to observable behaviors. This view of teaching as complex work that requires teachers to be researchers is consistent with efforts to professionalize teaching, which include requiring teachers to take on the responsibility of investigating their own practice. Teacher research can also support the intellectual life of teachers. An emphasis on teaching as thinking has the potential to attract intelligent students to the field and to keep them in the field. Most importantly, teacher research gives teachers voice. No longer will the only voices or the loudest voices be those of outside experts who may or may not have classroom experience. Teacher researchers will share their own discoveries—what they know from observing and analyzing their classroom practice, what they know about student learning and curriculum that supports student learning, and what they know about what classrooms could and should be.

Why Teacher Research

As one beginning teacher research participant explained:

> [T]eacher research is what keeps me honest. It keeps me from just doing what is easy or comes naturally and forces me to stretch in order to find new ways that are best for my students. It is also what keeps teaching interesting. It allows me to approach my work in an inquiry-based manner so that I am learning with the students. Teacher research lets me speak up in staff meetings and in my administrator's office and be heard because people know that my opinions are based on evidence and forethought. In short, it is a lot of hard work but it is always interesting work; it is a big part of what keeps me going.

Participants in this study confirm that learning about teacher research during their teacher preparation instilled the habit of teacher research. Their classroom inquiry informs, affirms, and sustains the practice of these beginning teachers. It gives them voice in their profession.

The time is ripe for teachers to bring their research knowledge to discussions of 21st century education. Policy makers and outside education researchers cannot be the only voices heard or teachers will be reduced to the role of technicians—carrying out mandates from above without considering the context in which they teach, and most importantly, the needs of their students. Teachers need to speak up about what they know from researching their own classroom practice. They need to speak out on how educational reforms they have implemented and researched impact their work, their students. The unique perspective of teacher researchers must be part of the conversation about how to best prepare and retain teachers to serve the needs of all learners.

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Revisiting Teacher Leadership: Perceptions of Teachers and Principals

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Abstract

The purpose of this qualitative study was to discover perceptions of teachers and principals regarding teacher leadership. The researchers investigated how selected Oregon teachers and administrators defined teacher leadership, as well as how they perceived roles, characteristics, and qualities of teacher leaders. Four themes emerged from the results: collaboration, interpersonal relationships, managing the work, and teaching and learning. Results showed that teacher leaders often acted in a collaborative environment and expected colleagues and administrators to be collaborative. Developing and maintaining positive relational skills were of importance, particularly related to caring and serving, as well as the dispositions of honesty, empathy, trustworthiness, and being a good listener. Managing work-related tasks was mentioned frequently: focusing on the vision for the school, enhancing the mission, chairing a committee, developing plans, and initiating tasks. Activities related to teaching and learning were of importance: planning, implementing, and evaluating instructional practices and student outcomes.

Introduction

Of the many issues confronting 21st century educators today, teacher leadership is one that has earned a prominent place of respect and practice for many school settings. In his book *The Leadership Imperative*, Reeves (2008) stated "The radical transformation toward teacher leadership is not an option; it is a necessity" (p. 17). Teachers in this role are in the spotlight in new ways, requiring 21st century skills.

Until a decade ago, teacher and principal roles were fairly traditional, and the role of public school teachers was often perceived as being limited to classroom instruction. However, *No Child Left Behind*, educational reform, an era of accountability, and teacher voice in professional development have had a significant influence on the concept of leadership in schools. So while it has been an important topic in the educational community for the last number of years, teacher leadership has recently re-emerged with an even greater importance. This description of the change which has taken place is consistent with Jackman and Swan's (1996) statement that "organizational changes in schools resulting from a switch to site-based management and decision making have changed many schools and provided teachers with the opportunity and responsibility to assume some leadership roles that were unavailable to them before" (p. 41).

However, while the importance of teacher leadership is generally recognized, the perceptions of teachers and administrators do not always align with each other, posing challenges in the educational setting. The purpose of this qualitative study was to discover perceptions of

teachers and principals regarding teacher leadership. This led to the research study question: What are the perceptions of teachers and principals regarding teacher leadership?

In this article, we explore how the literature reveals the importance of teacher leadership, how teacher leadership affects student learning, roles teacher leaders play, and the qualities desirable in a teacher leader. We also investigate how teachers and administrators in our research study define teacher leadership, as well as how they perceive roles, characteristics, and qualities of teacher leaders. We then discuss application of the results as they relate to educational programs for future and current teachers and administrators. To conclude, we make recommendations for future study.

Literature Review

The literature in the area of teacher leadership has increasingly addressed the value teacher leaders are to others in their schools. It also highlighted current understandings of what it means to be a teacher leader. Writers also discussed the variety of roles teacher leaders perform, as well as the qualities essential for effective teacher leaders.

Importance of Teacher Leadership

Numerous writers affirm the increasing importance of the teacher leadership role, particularly in an educational reform environment. Smylie, Conley, and Marks (2011) even stated that teacher leadership "has become an established feature of educational reform in the United States" (p. 265). Darensbourg (2011) posited that teacher leaders keep a school "moving toward excellence" (p. 68). Some doubt that educational reform would move forward without teacher involvement or without teachers serving as leaders. In her book about teachers who lead, Wasley (1991) said that "research has led many people to the conclusion that teachers need greater leadership opportunities if public education is to survive in any kind of meaningful way" (p. 7). Barth (2001) also asserted that it is in teachers' hands that the possibilities for school reform reside. He indicated that rank in the hierarchy has little relevance when it comes to school-based reform. He said "Ask the teachers--for a change. They're on the front lines. Forget the bureaucrats and politicians and statisticians. Ask the teachers. They know the daily drama of the classroom" (p. 2).

Another reason teacher leaders are seen as instrumental in advancing educational reform is because the overall goal of improving schools is to increase student achievement. Teacher leaders are seen as instrumental in making that happen. In fact, Darensbourg (2011) and Boyd-Dimock and McGree (1995) indicated that teachers become leaders because they endeavor to make a difference in the lives of their students. Moller and Katzenmeyer (1996) remarked, "Schools that have taken advantage of the valuable resource [of teacher leaders] have seen the difference it can make. Students learn more [and] teachers are more satisfied with their work…" (p. 1). And Goetz, as cited in Varlas (2003) voiced a similar sentiment when she stated, "If we're going to make the kinds of changes we hope to have in terms of student achievement, in terms of school transformation itself, then we really have to capitalize on the potential of teacher leadership in our own buildings" (p. 2). Finally, Pellicer and Anderson (1995) said, "Without question, teachers are the best and most abundant source of leadership available to schools. Teacher leaders remain the last best hope for significantly improving American education" (p. 21).

Definition of Teacher Leader

Descriptions and definitions of teacher leaders are fairly consistent throughout the literature. What they all have in common is that teacher leaders influence student learning in a positive way, usually through their fellow teachers and the administration. According to York-Barr and Duke (2004):

> Teacher leadership is the process by which teachers, individually or collectively, influence their colleagues, principals, and other members of the school communities to improve teaching and learning practices with the aim of increased student learning and achievement. Such team leadership work involves three intentional development foci: individual development, collaboration or team development, and organizational development. (pp. 287-288)

As Crowthers, Kaagan, Ferguson, and Hahn (2002) stated, "Ultimately, teacher leadership is about action that transforms teaching and learning in school" (p. xvii).

Patterson and Patterson (2004) defined a teacher leader as "someone who works with colleagues for the purpose of improving teaching and learning, whether in a formal or an informal capacity" (p. 74). Formal teacher leaders are those given familiar titles such as department chair, curriculum coordinator, specialist, advisor, mentor, or members of curriculum development committees. These positions are generally identified by the principal and compensated either by additional salary or in exchange for a lighter teaching load.

Informal teacher leaders are "recognized by their peers and administrators as those staff members who are always volunteering to head new projects, mentoring and supporting other teachers, accepting responsibility for their own professional growth, introducing new ideas, and promoting the mission of the school" (Wasley, 1991, p. 112). The focus is more on the learning and improvement of school and student performance than on leading. Tasks may include many of the same as performed by formal teacher leaders, but they are often initiated by the teacher leaders and conducted on their own time.

Katzenmeyer and Moller (2009) provided a more comprehensive definition when they said that "teacher leaders lead within and beyond the classroom; identify with and contribute to a community of teacher learners and leaders; influence others toward improved educational practice; and accept responsibility for achieving the outcomes of their leadership" (p. 6). This description emphasizes the importance of collective versus individual leadership, the kind that makes a difference for the whole school versus the classroom level, and that is focused on the important tasks of curriculum and instruction versus management tasks (Smylie et al., 2011).

Roles of Teacher Leaders

As stated earlier, teacher leaders fall into two categories: formal teacher leaders (those with titles and who are compensated for their work) and informal teacher leaders. While roles are similar for both formal and informal teachers leaders, formal teacher leaders are given titles such as data coach, academic coach, instructional specialist, curriculum specialist, department head, or grade level team leader. Both roles are important.

The position of informal teacher leader is becoming increasingly more common. Emphasis is placed on the opportunities for leadership in the teacher's own classroom and day-to-day work in contrast to other assigned locations in the building. Informal teacher leader roles include facilitator, advisor/mentor to new teachers, peer observer, member of a professional

learning community, resource provider, and learner. They may also facilitate professional development, develop and implement innovative programs and initiatives, conduct and present research, or receive grants.

In their research, Boyd-Dimock and McGree (1995) found that the work of teacher leaders varied greatly, but was usually specific to the context of the school. They also found that their roles continued to expand as time went on. In their research on teacher leadership, Birky and Ward (2001) found that the most common roles that were played by teacher leaders were collaborating with peers and communication with all members of their school community. Darensbourg (2011) listed typical roles that teacher leaders perform. She said teacher leaders:

- Plan, organize, and create,
- Assist in the overall improvement of a school's community and performance,
- Collaborate with peers, parents, and school communities,
- Continuously reflect on their work and the work their school is doing. (p. 68)

Characteristics and Qualities of a Teacher Leader

What are the characteristics of an effective teacher leader? According to Darensbourg (2011), teacher leaders:

- Are passionate, driven, and have expertise in instruction,
- Engage in continuous inquiry, inform, persuade, mobilize, and energize others to do more with their communities,
- Are willing to take risks and participate in shared decision making,
- Strive to stay current in the field,
- Are often politically active and aware socially of issues pertaining to their profession and the students they work with. (p. 68)

While Darensbourg's list of characteristics and qualities is current, over 20 years ago Lieberman, Saxl, and Miles (1988) delineated a more expansive list of teacher leadership roles and characteristics. Many of the descriptors were similar, but in addition, they also said that the role includes encouraging others, taking initiative, persevering, and celebrating and recognizing program successes. Lieberman et al. found that teacher leaders also had to use and learn skills in promoting a vision, building trust and developing rapport, being non-judgmental, modeling and promoting collegiality, encouraging others, taking initiative, persevering, and celebrating and recognizing program successes.

This review of the literature summarizes the importance of teacher leadership, a definition of teacher leader, a description of roles, characteristics, and qualities of teacher leaders. In our study, we sought to explain and add to the body of knowledge about teacher leadership today.

Research Methods

The purpose of this descriptive study using qualitative methodology was to investigate the perceptions of teachers and principals about teacher leadership (Marshall & Rossman, 1989). The study included looking at the definition, role, characteristics, and qualities of a teacher leader. This exploration into teacher leadership was based on the knowledge that a renewed interest in teacher leadership has emerged, and that comparing teacher and principal perceptions may be informative to those involved.

Participants for this Oregon study were selected by utilizing convenience and purposive sampling techniques (Berg, 2007). In total, 51 teachers and principals participated in the study: 39 teachers (29 female, 10 male) and 12 principals (3 female, 9 male) from elementary and secondary levels. The sampling process took place over a period of several months through four main venues: one university doctoral leadership class, two literacy workshops for secondary teachers, one rural elementary school, and a purposive selection of principals.

We obtained permission from the university's Human Subjects Committee prior to conducting the study. Surveys with open-ended questions were created to gain a descriptive viewpoint from the participants (Marshall & Rossman, 1989). Surveys were disseminated in person to teachers and to some principals. A purposive sampling was utilized for the rest of the principals who were contacted via email. Upon the remittance of surveys, identifying information was eliminated to assure confidentiality of the participants and any identifiable institution that was a part of the study.

The survey was intended to uncover possible themes and patterns about teacher and principal perceptions regarding teacher leadership: definition of teacher leader, roles, characteristics, and qualities. We created the following open-ended questions with no forced choice items, based on the literature about teacher leadership:

1) What does teacher leadership mean to you?
2) What are the formal and informal roles of a teacher leader? (What do they do? What is the purpose?)
3) From the list above, star (*) the two most important roles of a teacher leader.
4) What are the most important personal characteristic/traits of a teacher leader?
5) From the list above, star (*) the two most important traits of a teacher leader.

Questions 3 and 5 were created to ensure trustworthiness in the response to questions 2 and 4. Participants were asked to highlight the roles and traits that were most important to them. This information became a part of the themes and patterns identified.

Data Analysis

Upon return of the surveys, we created a template for organizing and summarizing the data. We then recorded participant narratives related to the definitions, roles, characteristics, and qualities of teacher leaders into the chart. In addition, we organized the data based on position, gender, and years of experience (0-5 years, 6 – 15 years, 16 – over years). After coding the data, we synthesized it, seeking themes and patterns for interpretation that would shed light upon the perceptions of the participants (Berg, 2007; Creswell, 1994).

Results of the Study

The data describing principal's and teacher's viewpoints revealed valuable insight into their perceptions of teacher leadership. We looked at the data from various angles: position, gender, and years of experience. We also examined the participant responses to the definition of teacher leadership, roles, characteristics, and qualities of a teacher leader. Four major themes emerged from the data that link to the research question: What are the perceptions of teachers and principals regarding teacher leadership? The following themes are addressed: collaboration, interpersonal relationships, managing the work, and teaching and learning.

Collaboration

Even though the survey did not use the word *collaboration*, participants frequently mentioned the word. In addition, they referred to various ways of working with others, such as cooperation, working with groups, teaming, professional learning communities, and learning together.

The concept of collaboration appeared in the responses to all survey questions. Participants referred to collaboration in their definitions, indicating that collaboration was part of the work teacher leaders did with a variety of people: colleagues, staff members, department chairs, and administration. Participants brought up collaborative roles teacher leaders played such as meeting with teachers, working with administrators, and assisting teachers. They also mentioned teacher leaders' role in meetings: leading, facilitating, participating, and even creating the group. Some used it to describe a quality that teacher leaders had, for example "group skills," and the "ability to bring people together." One teacher said that a teacher leader was "group-oriented" and another that they were a "team-player." Still others used a form of the word collaboration to describe how teacher leaders work together to effectively accomplish a task: "for the purpose of student learning," "to grow and learn together," and to "facilitate teamwork." While participants came up with these descriptors related to collaboration on their own, they were consistent with the writing of both Darensbourg (2011) and York-Barr and Duke (2004) who stated that teacher leaders are frequently involved in collaboration.

One of the main functions of collaboration was that of mentorship. Many participants mentioned that teacher leaders have the ability to influence others and should therefore model professional behaviors and lead by example. They are seen as a resource to teachers in many ways. Teachers and principals believed that effective teacher leaders look at data, offer resources, advise, inspire, guide, support, motivate, and provide feedback to their colleagues who teach.

The concept of collaboration was always seen as a positive action with beneficial results. One very complete description was written by a teacher who said that teacher leaders "work together with other educators to improve and share instructional practices, increase knowledge of new research and best practices, and make positive changes in education to improve learning and success." This description closely aligns with Katzenmeyer and Moller's (2009) comprehensive definition.

Teachers who lead can make a difference in student outcomes when they help teachers improve their skills. A teacher stated, "They support inside and outside the classroom with curriculum, feedback, guidance, resources, examples, etc." Another teacher said that teacher leaders are "teachers who take the time to help other teachers, new and old, with lessons, planning, data, etc. to bring them along and help strengthen and improve instruction." The literature includes an abundance of assertions that collaboration between principal and teacher results in higher student achievement, happy teachers, and more successful schools (Darensbourg, 2011; Fullan, 2001; Kohm & Nance, 2009; Patterson & Patterson, 2004).

There were slight differences in the perceptions of teachers and principals related to collaboration. Overall, teachers referenced both collaboration and mentoring more than principals, although the differences were not great. In addition, principals and teachers with less experience mentioned collaboration more frequently than those with more educational experience.

Interpersonal Relationships

In our study, teachers and principals frequently used terminology that suggested the importance of *interpersonal relationships* with colleagues, administration, students, families, or the community. Effective principals placed high priority on relationships, listening to the voice of others, and consideration of their feelings (Donaldson, Marnik, Mackenzie & Ackerman, 2009). Not only did our research support Donaldson et al. but our results included statements from teachers that supported the value of interpersonal relationships for the betterment of the school environment. Teachers and principals both remarked about the need to build relationships among the staff.

The use of such terms as care, compassion, support, and service emerged repeatedly within the data. Although the meaning of each of these four words may vary slightly, they are generally found in the literature within the field of education. The words were used interchangeably, or in combination with each other. Teachers overwhelmingly indicated the need for a teacher leader to support their colleagues or the administration, and to be supportive of each other. In addition, they mentioned the need to care and show compassion. In ethics of care (Gilligan, 1982; Noddings, 2005), personal relationships are of importance in the development of moral principles. Principals mentioned that being service-oriented or the ability to serve others was a valuable characteristic of a teacher leader. One principal stated that "leadership is a form of service" while another mentioned that a teacher leader is a "servant first and creatively serves the needs of all involved." Marzano, Waters, and McNulty (2005) spoke about the importance of service within the organization, and these principals highlighted this characteristic; fewer teachers mentioned servant leadership in comparison to principals.

Several personal characteristics or qualities of personhood were mentioned in the findings. In sharing what the characteristics of a teacher leader should be, participants included terms such as honesty, integrity, trustworthiness, and respect. In addition, it was indicated that a teacher leader should be charismatic and be an encourager with colleagues. These characteristics support the importance of positive interpersonal relationships within the school community. They also support what the literature states about the characteristics of good leaders (Northouse, 2010).

In addition to the characteristics mentioned, principals suggested the importance of communicating both verbally and nonverbally with others, including the ability to be a good listener; good communication was a key attribute of teacher leadership. These qualities support what Birky and Ward (2001) found in that the most common roles played by teacher leaders were collaboration with peers and communication with all members of their school community. The ability to be a good listener was another positive quality mentioned by both teachers and principals in this study, as well as Marzano et al. (2005).

Overall, both teachers and principals believed that showing care, compassion, and support were important traits for a teacher leader to possess. As one teacher shared, "[a teacher leader has the] ability to connect with all types of people and build relationships."

Managing the Work

Another theme, *managing the work*, emerged. It related to various managerial tasks of a leader as well as the organizational development of the school. There was an influence of the *interpersonal relationships* theme as well. One participant indicated that leaders must balance between caring for others and getting the work done. The term, managing the work, refers to tasks a leader may do in the process of leading. This could mean, according to some participants, the leading of site council meetings or professional development trainings. It also refers to the basic tasks of planning, implementing, and evaluating instruction or student work within the classroom, as well as analyzing data that comes from the classroom.

Marzano et al. (2005) indicated that certain traits are necessary for leaders: healing wounds caused by conflict within the organization, being a steward of resources within the organization, and developing the skills within the organization. Participants mentioned empathy, the need to resolve conflict, monitor resources, and follow policy and rule procedures.

Principals, in particular, indicated roles, characteristics, qualities, and traits that related to teacher leaders managing the work. The data revealed that principals believed problem solving and decision making were critically important to the role of a teacher leader. According to one participant, it was important that a teacher leader "empower others to problem solve." In addition, several participants mentioned the need for organization and setting goals. This supports Darensbourg (2011) who listed typical roles that teacher leaders perform, such as planning, organizing, creating, and assisting in the overall improvement of a school's community and performance. One participant mentioned that "facing the challenges of doing the hard stuff" is part of the role of a teacher leader. One participant suggested that "teacher leadership means taking an active role in advocating for my students, myself, and fellow colleagues." Another participant stated that "a teacher leader leads the charge, knows the craft, does what's best for kids at all costs … [and] moves forward."

One of the qualities of a good leader is that they motivate their followers. Some of the participants mentioned that teacher leaders need to inspire others toward the mission and goals of the school. Inspiring others is an important role of a leader (Kouzes & Posner, 2007). Motivating and encouraging colleagues was also mentioned by several participants. One teacher stated that "leaders motivate and bring priorities together to help everyone focus on the most effective direction." This is consistent with a comment made by Wasley (1991) when she said, "[teacher leaders] have the ability to encourage colleagues to change, to do things they wouldn't ordinarily consider without the influence of the leader" (p. 170).

Participants in this study said that a teacher leader is willing to go above and beyond regular teaching duties to help guide, encourage, direct, and facilitate discussions. Setting and reaching goals within and outside the classroom was also important. Teacher leaders can "help plan and implement training," problem solve, and "bring meaning to the tasks." Additionally, participants mentioned "guiding the school," "getting the work done," and "making decisions" as an important role of a teacher leader.

Overall, teachers and principals suggested that leading and managing tasks was an important teacher leader role; however, who was supported or served depended on their position as teacher or principal. Generally, teachers discussed leading and managing tasks as those that take place in the classroom. Or if the teacher leader were in a formal position, then the tasks related to collaborating or working together with colleagues. Principals, on the other hand,

tended to look at the work of a teacher leader as one that would support and help the building administrator.

Teaching and Learning

Teachers referred to the role of teacher leader as one who was engaged in the activities within the classroom: planning, implementing, evaluating instruction, and serving the needs of students. A definition that most aptly suggests the view of teachers was stated by one participant, "Teacher leadership means taking an active role in advocating for my students, myself and fellow colleagues. This can be done by taking classes, book studies, presentations, and being a council member at school." Several participants shared that doing what is best for kids was important. They said teacher leaders work together with other educators to improve and share instructional practices, increase knowledge of new research and best practices, and "make positive changes in education to improve student learning and success."

In addition, participants indicated that a significant function of a teacher leader is to lead other teachers to utilize new methods of teaching, and instruct and support other teachers. Furthermore, teacher leaders take ownership of all aspects of teaching and learning, and they collect and analyze student data. As teachers, they help students think critically, help all students learn, and desire best practices. They work alongside other teachers to plan lessons, look at data, and strengthen instruction, all in order to improve student outcomes. In addition, the teacher leader supports teachers inside and outside the classroom with curriculum, feedback, guidance, resources, and examples. This is consistent with Crowthers et al. (2002) who implied that the whole purpose of teacher leadership tasks is to transform teaching and learning.

A definition that most aptly suggests the view of teachers was stated by one teacher participant, "Teacher leadership means taking an active role in advocating for my students, myself and fellow colleagues." Principals, on the other hand, suggested that a teacher leader should have the ability to influence others for the purpose of increasing student achievement. Overall, participants viewed the role of a teacher leader first and foremost a teacher.

Conclusion

In this paper, we described the perceptions of teachers and principals related to teacher leadership. We first looked at the data based on a definition of leadership, as well as how teachers and principals perceived roles, characteristics, and qualities of teacher leaders. In analyzing our data from multiple directions we uncovered some patterns worth mention. First, no apparent difference appeared between female and male responses for either teachers or principals. Secondly, there was minimal difference between years of experience and perceptions by either teachers or principals. Thirdly, based on position, there were some differences between teacher and principal perceptions about teacher leadership. For example, teachers tended to discuss collaboration, interpersonal skills related to care, and teaching and learning activities more frequently than principals. On the other hand, principals tended to mention the activities that related to "managing the work." In particular, they mentioned leadership style related to service, and interpersonal relationships related to communication.

It is interesting to note that three of the emergent themes in our study aligned similarly with York-Barr and Duke's (2004) themes of individual development, collaboration or team development, and organizational development. We chose collaboration, interpersonal relationships, managing the work, and teaching and learning as the main themes for our data.

Additionally, to communicate and collaborate were two of the qualities of teacher leaders that participants mentioned and which appeared in the literature about 21st century teachers (Partnership for 21st Century Schools, 2009).

The *interpersonal relationships* theme undergirded the other three themes of *collaboration, managing the work,* and *teaching and learning.* There was strong evidence that the interpersonal skills of care, compassion, support, and service influenced all three themes as well. Teacher leaders must care for their students and colleagues, show compassion, support one another, and serve their school community. These are what we often refer to as "soft skills." The results of this study suggested the importance of interpersonal relationships for a teacher leader. Currently, collaboration is an expectation in many schools. But neither a good relationship or collaboration will take place without caring and supportive educators. As a teacher leader, these soft skills are necessary for performing the tasks and leading colleagues.

Although participants recognized the value of relational skills, they also acknowledged the need to complete tasks. As one participant stated, "teacher leadership at its best, is dynamic and purposeful." We discovered that many of the qualities of a teacher leader, as well as roles they play, are similar to those of an effective principal or administrator. Yet, educational programs usually educate future administrators for these roles and characteristics, but not future teachers.

Recommendations

Katzenmeyer and Moller (2011) remind us that it is the role of colleges and universities to prepare teacher leaders as part of teacher development. Sharing the results of this study about the perceptions of teachers and principals related to teacher leadership would be beneficial to higher education administrative licensure, leadership, inservice, and preservice programs who train teacher leaders and administrators. We can explore with them the variety of roles teacher leaders play in their positions. We can teach these audiences that high performing teacher leaders possess the qualities of care, compassion, support, and service. And we can investigate with them other characteristics of effective teacher leaders so they can determine whether or not they are interested or suited for this important role. Because the role of teacher leader is important for school improvement and student achievement, a discussion about the findings of this study could also take place in professional development workshops for inservice teachers.

Several of the participants (more principals than teachers) mentioned servant leadership as important. With this knowledge, it should be brought to the attention of administrative training and teacher education programs to include servant leadership that supports collaborative work and positive relational development (Marzano et al., 2005). Furthermore, understanding the connection between servant leadership and teacher leadership could glean additional information to support content within leadership courses in higher education and professional learning community training sessions.

Since collaboration appears to be an important aspect of teacher leadership (Kelley, 2011), it would enhance the body of research to explore teacher leadership involvement in collaboration. What are the best models for working together with colleagues, both fellow teachers and the principal? In what specific ways can collaboration be used to maximize student achievement? What are the obstacles to collaboration and how can they be overcome?

With schools moving toward greater staff and student accountability and the spotlight on 21st century schools, an increase in teacher leaders will be essential to provide change agents for

the future. Effective teacher leaders will be a part of leadership teams and participate in shared leadership. The results of this study showed that overall, teachers and principals have similar perceptions of the roles, characteristics, and qualities necessary for teacher leaders. Particularly noteworthy is their commitment to the value of relational skills and connectedness with colleagues. We hope this means that teacher leaders and principals together can maximize their leadership potential to give their students the best education available today.

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Points of Leverage: Navigating Tensions between Socio-Culturally Relevant Teaching and Accountability Pressures

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Abstract

This qualitative study explores how an elementary teacher navigated tensions between accountability and bilingual learners' needs. Questions included: How did a teacher employ students' socio-cultural resources in content areas? How did accountability shape use of resources? What are points of leverage—i.e., promising instructional practices to be further developed and harnessed—to meet student needs? Findings show how Ms. Montclair briefly connected to students' resources, focusing on making content comprehensible, transmitting information, staying on pace, and practicing testing. Although familiar with project-based and family/community-oriented learning, accountability measures impacted instruction. Yet promising instruction integrates socio-cultural resources to promote innovation and meaning.

Ms. Montclair: When you go to these meetings some people will be sitting there like, "What page are you on?"
Researcher: Really, district meetings?
Ms. Montclair: Yah, they'll be like, everybody is in the theme dah, dah, dah. You should be in Theme 2 by now, right?

In this era of accountability, bilingual third grade teacher Ms. Montclair (pseudonym) described the pressure to keep up with other grade level teachers and to cover the content of the curriculum. District meetings took place within a context of control and fidelity to curriculum. Ms. Montclair made instructional decisions in part based on her own expertise from years of experience and higher-level decisions and pacing charts. She saw the importance of doing project-based learning, tapping into children's cultural repertoires, and adhering to curriculum mandates. Teachers in the 21st century, like Ms. Montclair, understand the worth of attending to students' linguistically and culturally diverse backgrounds while working within political and administrative contexts that shape curriculum and instruction.

Ms. Montclair recognized the importance of tapping into a family's socio-cultural resources, often marginalized or under-utilized. In an interview, she talked about past success with project-based learning, before curricular reforms, describing a unit about building machines.

> One year we did a project where they built bridges at home, using recycled materials. We did that a couple years in a row. They had to write about it, they had to bring it, show it and explain how they did it…. One kid brought in a bridge and he's like, "My bridge is so strong, you could even stand on it." …We're putting weights on it, lamps on it; he brought this little bridge and I could stand on it. All these kids, whose moms were usually the ones to help with homework, were out in the garage with dads or *tíos* making stuff. A lot of kids made them out of straws and scotch tape, but a lot of kids went to the shop…. Their dads work in construction…. That's the kind of thing you could do while still doing book work. But something's got to give because there's so much in there.

While recognizing power in hands-on projects that connected children to parents' skills and

knowledge, Ms. Montclair also acknowledged the need to do "book work" to cover curriculum as specified by the district, describing tension with covering curriculum and doing meaningful projects. Work such as construction can provide important funds of knowledge, especially in Latino families that may have valuable employment-related intellectual resources like building and carpentry (Moll, Amanti, Neff, and Gonzalez, 2005). Relevant projects keep children engaged, especially those from marginalized groups (Moje, Collazo, Carrillo, & Marx, 2001).

Multicultural or bilingual teachers are caught in a double-bind in which they experience tensions when drawing on cultural resources as they try to engage in relevant and responsive instruction for their diverse student population (Achinstein and Ogawa, 2011). Teachers face demands of standardization, knowledge transmission, and test scores that may cause conflict when trying to teach with culturally-relevant, collaborative, and social justice approaches. In some cases, these conflicts can be turned into "productive tension" in which the teacher is motivated and given opportunities to develop professionally and create innovative instruction (Stillman, 2011). Teachers negotiate the in-between spaces to find middle ground between mandated requirements and their own expertise about effective instruction. Research needs to explore how teachers, even at beginning stages, create innovative spaces and find dynamic moments that lay the groundwork for productive practices.

To bring to light how cultural tools, social networks, and resources can be recruited as strengths in schools, this study uses the term *points of leverage,* which means that students' own connections or meaning-making processes are leveraged or used as sites for learning. This study does not take a romantic view or assume that it is easy, effortless, or automatic to use students' cultural and social practices as assets in the classroom. Yet, by examining these resources and a teacher's ways of making use of them, these resources can be further leveraged by teachers to better serve the educational needs of 21st century learners in diverse contexts.

This article explores the tensions faced by an experienced teacher and how she negotiated staying on pace and employing students' socio-cultural resources in social studies and science. Specifically, this study highlights *points of leverage*, potential sites to be further developed to enhance student learning. In-between spaces hold promise for allowing teachers to effectively negotiate tensions between utilizing student resources and staying true to the curriculum.

Theoretical and Empirical Perspectives

The next sections explore accountability contexts and teaching approaches for diversity.

Teaching Context: Accountability, Bureaucracy, and Testing

In this era of accountability, it has become typical to encounter standards-based curriculum, high-stakes testing, standardization of instruction, and administrative or bureaucratic control over teachers and school practices. Teachers with the best of intentions and who *know* what works with their students are being pressured into teaching in ways that are less than desirable (Sheldon and Biddle, 1998). The emphasis on student test performance and the increase in district, state, and federal control over *what* teachers do in their classrooms can lead to a narrow set of instructional practices. "When strong emphasis is placed on tests and how student performances 'stack up,' teachers may narrow their curriculum, teach to the test, or encourage students to focus only on knowing how to get the right answers to test-type questions" (Sheldon and Biddle, 1998, p. 174). With stricter mandates for how to teach content, teachers

may shelf hands-on activities, store away boxes of art and creative supplies, and bring forth practice sheets and test-like activities to enhance testing performance and evade sanctions. In this process, students' ability to think broadly and flexibly is stifled (Ovando, Combs, and Collier, 2008). And, visuals, kinesthetic or theatrical performance, and multisensory scaffolding (Herrell and Jordan, 2011) that greatly benefit not only English language learners (ELLs) but all students may become less commonplace as textbooks and restrictive curricula become the norm.

A number of types of accountability exist in education today (Darling-Hammond, 2004; McDermott, 2007). Darling-Hammond (2004) describes one type, *bureaucratic accountability,* as when "federal, state, and district offices promulgate rules and regulations intended to ensure that schooling takes place according to set procedures" (p. 1050). These rules standardize delivery of instruction, often with the purpose of achieving equitable educational contexts, but can be counterproductive when students have specific needs requiring differentiated instruction. Under certain mandates, teachers lack flexibility to organize and shape instruction to meet the needs of all their charges. Darling-Hammond describes how urban public schools have been especially affected by "educational procedures, prescribed curriculum and texts, and test-based accountability strategies…" (p. 1051). In this way, school systems are "the epitome of top-down, undemocratic bureaucracy" (Ingersoll, 2003, p. 7). Top-down mandates about what to teach, how and when to teach it, and how to assess what is learned leave little room for teachers to make informed and professional decisions about how to meet students' needs. Issues of accountability cannot be separated from understanding how teaching occurs within a larger institutional context and the appropriateness of student learning opportunities.

Teaching Approaches: Connection, Conversation, Culture, and Content

Most 21st century classrooms have significant cultural and linguistic diversity; thus, teachers need research-based approaches that provide rich learning opportunities for all students.

Connections to Real Life. Moll, Amanti, Neff, and Gonzalez (2005) suggest utilizing student, family, and community resources to transform the quality of instruction in schools, reducing rote-like instruction and promoting relevant teaching. These researchers focus on children usually considered to be "poor" and illuminate their socio-cultural affordances that would enhance teaching and learning. Participating families have substantial knowledge about construction and building, farming and animal management, cooking, and folk medicine linked to curricular areas such as science, math, or social studies. The researchers state, "We use the term *funds of knowledge* to refer to these historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being" (p. 72). Teachers make use of these funds to develop units of study involving inquiry, active learning, and strategic use of social relationships outside the classroom. Research shows that relevant teaching engages students by immersing them in authentic topics and bolstering identity.

Conversations. In first grade, Gallas (1995) holds "science talks" in which the whole class regularly discusses science, theorized about nature, and wondered about the world. These inclusive talks let them gain entry to the discipline and invite all to join the conversation. Through dialogue, children come to own scientific language and "take control of a new way of thinking and being" (p.2). Children question, wonder, and imagine about how their personal narratives relate to the natural world. The talks are dynamic and flexible rather than

predetermined or limited by notions of what might be appropriate subject matter or fit developmental expectations. A science talk is multi-voiced in that it is "messy and sometimes chaotic in its style and content, but reflecting the vitality of children' lives and ideas" (p.3). In first grade, Gallas (1995) shows the richness of ideas and appropriation of language that occurs when a teacher dedicated time to lively and frequent dialogues for children to explore their socio-cultural worlds, scientific theories, and ways of naming phenomena and experiences.

Storytelling. Michaels (2005) shows that some children come to class unfamiliar with school discourse styles that expect them to use academic language in specific ways, such as in math to "explicate the mental processes with which they engaged—in pictures, figures, or in words—to arrive at their answer" (p. 139). She documents students' reliance on narrative accounts to articulate their reasoning, provide evidence, or challenge others' thinking. During these moments, when students rely on storytelling instead of school genres in math or science, teachers struggle to recognize students' thinking or acknowledge it as logical. "Working-class children—new to the school speech genre that calls on students to 'explain how you got that answer'—will justify their answer by explicating the experiences that led up to or substantiate their intellectual expertise" (p. 139). The author suggests that children from working-class families value personal storytelling, construct artful narratives, and frequently use stories. Often, these stories privilege dramatic language and are used to defend one's own point of view. This research views working-class storytelling, not as deviation from middle-class standards, but as powerful and meaningful in its own right. It helps to discredit myths about working-class families and highlight intellectual resources of working-class storytelling. Furthermore, it calls for educators to consider ways that working-class students can gain membership and experience with new speech genres by explicitly connecting to and capitalizing on affordances they bring.

Translating. Students must learn not only general school language but also "specialized conceptual language" in subjects like science to reason, solve problems, and follow scientific procedures in labs and the natural world (Lemke, 1993, p. 1). This specific disciplinary language is different than ways of talking in everyday life, and students who are novices with academic specialized language should have explicit instruction. Lemke (1993) suggests, "Students should regularly have oral, and occasionally written, practice in class in restating scientific expressions in their own colloquial words, and also in translating colloquial arguments into formal scientific language" (p. 173). Following this approach, teachers could have students write variations on a topic, taking up disciplinary language and also utilizing everyday ways with words (e.g., cartoon movie, family recipe, and personal stories). Students could explore various genres and the discourses employed by each. Ciechanowski (2009) explains, "The power in this approach comes from how the teacher guides students in understanding the nuances in language and the values or purposes underlying language differences" (p. 567). In this way, teachers would show how scientific language utilizes specific forms of grammar and argumentation, involves abstract concepts instead personal actions, and eschews fiction, comedy, imaginary or figurative images. Studies should explore how to explicitly instruct students to navigate across these discourses.

Data Collection and Analysis Methods

This qualitative study took place over six months in two third-grade science and social studies classes taught by a Spanish/English bilingual European-American female teacher. Ms.

Montclair (all names are pseudonyms) had taught bilingually in California for 4 years and had been teaching at this school for 9 years at the time. Her native language was English but she was highly fluent in Spanish, having majored in Spanish and lived in Mexico for six months. She had recently moved into a house in the school's neighborhood and described profound respect for her community. Ms. Montclair valued students' everyday lives and family resources and wished the district would pay teachers in August for a week to visit student homes and families. Visits would fortify connections between home and school and impart useful insights about students.

The school was a Spanish/English Bilingual school of choice in a large urban center in the Midwest. The K-8 school was situated in the southwest area of the city, which had a predominantly Latino population. Some students were recent immigrants to the U.S. but others had lived in the country for most or all of their lives; thus, the population demonstrated quite a range in bilingualism and varying levels of connection to their home countries.

Data were gathered using observations (recorded as field notes), interviews, and artifact collection (of student writing and the curricular texts). I collected data from November to June ranging from 2 to 5 times per week (during the focal units I visited more frequently), resulting in approximately 22 weeks of observation (i.e., 67 visits and 134 hours of observation). The teacher alternated between social studies and science units, switching back and forth throughout the year. I not only observed the official instruction and teacher-student interactions but I also informally interviewed both students and the teacher throughout the class during pauses in whole class instruction. I interviewed the teacher in an on-going way during and after class in addition to a two-hour interview off school grounds in June. I talked with students about literacy and sources of socio-cultural knowledge as it related to their *in-situ* reading of texts. Additionally, I collected a variety of artifacts (i.e., student work, official curricular texts, and pacing chart).

In collaboration with Ms. Montclair, I chose twelve focal students to represent high, middle, and low literacy and engagement levels and the social and demographic characteristics of the general school population. Observations focused more heavily on these focal children and additional artifacts were collected from them. For years, Ms. Montclair had given end-of-unit tests based on each chapter, to prepare students for multiple choice standardized tests, and she agreed to include a pre-test that was identical to each post-test, which provided additional data.

Analysis methods included Constant Comparative (CCA) (Glaser & Strauss, 1967) and Discourse Analysis (DA) (Gee, 1996, 2000; Fairclough, 1992). CCA provided the tools for coding and re-coding field notes and interviews and documenting themes around use of student resources, curricular demands of the content areas, teacher decisions, and instruction. With DA, I closely analyzed the language used in instruction and written texts. These methods allowed for analysis of overall learning during units, how students drew on socio-cultural and linguistic resources in content areas, and how the teacher took up these resources in her instruction.

Findings and Discussion

Ms. Montclair made brief connections to socio-cultural resources and focused on making content comprehensible, transmitting information, staying on pace with coverage of curriculum, and providing practice for testing and accountability measures. She valued students' socio-cultural resources and made space for them; thus, there were momentary glimpses of "third space" (Gutierrez, et al., 1999) when her instructional plans noted and integrated resources in ways that led to innovation and deeper meaning. Ms. Montclair discussed how students' resources could move their learning to a new level, demonstrating how these *points of leverage*

had potential, with further exploration and refinement, to enhance content learning. The initial section provides a snapshot of the instructional context and pressures Ms. Montclair faced. The following sections discuss: (1) connecting to culture and everyday life, (2) storytelling, (3) conversing about content, and (4) navigating across disciplinary ways of thinking.

Context of Curriculum, Resources, Pacing, and Testing

Ms. Montclair was given restrictive content area curriculum that included a science and social studies textbook as a singular source of information and that was not geared towards bilinguals or ELLs. The third grade science textbooks called *Harcourt Science* (Frank, *et al.*, 2005) were new in fall of that year and the class set was provided in English, with only a few copies in Spanish, despite the Spanish/English bilingual program and a number of Spanish-dominant students. The social studies textbooks called *Communities: Adventures in Time and Place* (Banks, *et al*., 1997) were only available in English at the school. Although the newly adopted science textbooks included a hands-on science activity at the beginning of each chapter, Ms. Montclair did not receive any supplies (e.g., shells, chalk, clay, beakers) and found it difficult to get the needed materials and set up for two classes without preparation time. To complicate matters, she was explicitly directed in *how* to organize teaching the science textbook, as evidenced by the pacing chart from the district, showing a specific order and time frame when content should be covered. Ms. Montclair felt accountable to some degree for how students performed on 5th grade mandated district science tests; thus, one of her regular practices was to administer post-unit tests after each unit, consisting of multiple choice and short answer response questions drawn directly from textbook chapters. Amidst demands for coverage of content, lack of Spanish resources, pressure to perform on tests in English, and challenging unmodified texts, the teacher decided that the English-language textbook should be read aloud together as a class with discussion in Spanish and note-taking on the chalkboard afterwards. Much of class time was spent in whole-class conversations, as depicted in the sections below.

Connecting to Culture and Everyday Life

To help students connect content to their lives, Ms. Montclair often asked, "Have you seen…?" or "What are examples of…?" She provided open-ended questions for students to make connections and interrogate relevance to everyday life. These questions not only generated concrete mental images of scientific concepts but also assessed student understandings by asking for appropriate examples. Ms. Montclair typically initiated the question (although sometimes the student provided an example first), received a response, and then evaluated the example (in an Initiation-Response-Evaluation sequence; Mehan, 1979). She at times approved of an example and restated it, extended talk about it, or drew it on the board. Fitting examples moved lessons forward in alignment with lesson objectives but less-accepted examples were often corrected or refocused in line with her goals. Generally, this questioning stance provided support and time for students to think about connections between their school subjects and their everyday life.

Ms. Montclair praised appropriate applications between content knowledge and everyday life and affirmed fitting examples of natural phenomena. In a weathering lesson, Adriana offered an apt example about how rock gets worn and weathered, as shown in the excerpt below:

Adriana: [At the museum] There's a donkey made of stone and he tells kids "don't touch it" because it can wear away stone. It used to be gold, now it's

black and chipped off.

Teacher: Good example. The statue at the museum… [She describes it]. Have you been to church and the pews have smooth spots where people put their hands? Or, in the stairs, it dips. Or, have you seen handrails that are worn down? All people did is touch them, and your hands are soft, but over time it wears down…. Have you seen water drip in the same spot over time it makes a big hole? That's weathering.

Ms. Montclair praised Adriana for a real-life connection and continued along these lines by questioning students with, "Have you seen…?" interrogating whether they had noticed worn spots in church pews, stairs, handrails, or under water leaks. These questions regularly promoted thinking about where and when students experienced scientific phenomena in daily life.

In the next exemplar, Ms. Montclair took up students' resources that tightly matched the focus of the lesson as students drew examples came from family and popular culture:

Teacher: On paper here, draw what sand dune looks like. *Se llaman dunas pero voy a poner "dunas de arena" para que sepan*. [They are called dunes but I'm going to put "sand dunes" so you know it.]

Teacher: What about water? Could water move soil and sand?

Students: Yah

Teacher: What are examples of when that happens?

Alexis: Like on *Sponge Bob*. They made a castle on the beach and a wave came and knocked it down

Teacher: Have you ever seen waves keep coming and coming?

Nina: There was one time when waves kept on coming and coming

On the board, Ms. Montclair drew a sand castle in Box 2…

Lucas**:** My family went to Mexico and we built a castle of sand and it fell down then my dad had an idea to build out of rocks and it didn't fall….

Teacher***:*** What happens after the wind hits the sand?

María: When I went to Mexico…

In response to Ms. Montclair's question, "What are examples of…?" Alexis supplied an example from *Sponge Bob*, describing how a sand castle got destroyed by waves. It directly answered Ms. Montclair's question about when water moves sand or soil and, thus, Ms. Montclair took up Alexis's example and drew a sand castle on the chalkboard to illustrate erosion caused by water. Students connected to stories from transnational family trips to Latin America and from popular cartoon series, which the teacher took up and used in class, keeping focus on instructional goals.

The teacher requested examples that connected scientific content to the places, cultural artifacts, social spaces, and family experiences that were meaningful for students. Experiences with local trips (i.e., family visits to museums), transnational Latino culture, and popular culture (i.e., *Sponge Bob*) were relevant points of connection for students. Yet, as Ms. Montclair negotiated pressure to cover material, connections were momentary and surface-level so she could keep on pace. The *point of leverage* is the questioning stance that interrogates how students link content to everyday life and draw from broad repertoires of cultural practices relevant to learning in content areas. Further questions then have to do with the *depth* of connection to everyday life, applicability of student exemplars, and types of questions. What if teachers moved beyond in-the-moment exemplars and *planned* for integrating connections to students' resources? How could teachers activate a range of student resources even when they seem to detract from instructional goals? What types of questions would lead to deeper thinking

levels?

Storytelling

Storytelling and personal narratives were widely evident in the empirical data, as young children often connected to stories and some created vivid and artful narratives to make sense of everyday life. The third graders had life experiences related to content that they wanted to share, particularly about time spent in Mexico or Puerto Rico. In the following exemplar, Lucas and Edy tell stories related to the passage on earthquakes.

Teacher: A little pressure causes a small earthquake—a small vibration like people moving in gym. You can feel the room move when someone jumps in the gym upstairs above us.
Lucas: When I was seven, there was an earthquake in Mexico
Teacher: What did it feel like?
Lucas: A little like moving in the chair, I looked around to see if someone did it.
Teacher: Did it damage the house?
Lucas: No.
On the board the teacher draws a broken bridge with a car falling down and a building leaning over, and underneath these pictures she writes "*daños*/damage."
Edy: My mom said that when she was 21 she went to Puerto Rico and the earth moved for like an hour. A piece of the roof fell off and it was raining and raining for like 3 days.
Teacher: ¿*Qué va a pasar si hay un terremoto al fondo del mar*? [What will happen if there is an earthquake at the bottom of the ocean?]

Teacher drew a giant wave above the ocean and a rupture on the floor beneath the ocean. When Lucas recalled his firsthand experience with an earthquake in Mexico, he was connecting to his transnational experiences in which he related not only to local spaces but also to the climate, flora and fauna, and events in his country of origin. Lucas, like other students, often talked about science-related contexts in Latin American countries like Mexico, such as shell-collecting at the beach, work in the desert, animals like scorpions, and the hot climate. For students whose cultural practices involved time spent in two countries, it was important to make content relevant to multiple social and geographic locales. Ms. Montclair questioned Lucas about how the earthquake felt, perhaps wondering if his encounter felt like vibrations, then questioned him about whether the earthquake damaged his house. Lucas's story tightly matched her instructional objectives, and she validated his storytelling. Her questioning shaped his storytelling to keep the account on track with the specific goals of the lesson. Yet in another student's account of an earthquake that was vivid and dramatic, Ms. Montclair did not take up his story at all, most likely because of timing or his ways with words that did not seem to take up a logical or fully realistic school genre for reporting information.

Stories revealed important insights about students' thinking about content, but their logic or immediate relevance sometimes eluded the teacher's highly-focused lessons, as shown below:

Teacher: Most of the water on earth is salt water. Do we use it to drink? To bathe? To wash clothes? For plants to drink?
Students: [After each question] No!
Angelo: Where salt water is located?
Teacher: Oceans

María: Can you swim in it?
Dana: I went to Florida, Sea World, and whales splashed salt water and it got on everybody nearby.
Teacher: Okay, let's read more and then we can take notes and hear stories.
The teacher directed students to page D8 and they choral read "Fresh Water."

In this case, Dana's recounted a story about a Sea World vacation that may not have seemed directly and immediately applicable to the topic at hand. However, Dana and her classmate were thinking about creatures that swim in oceans, possibly focused on text that reads: "Many plants and animals live in the ocean. But salt water isn't good for the plants and animals that live on land or in fresh water" (Frank, *et al.*, 2005, p. D7). Perhaps students wondered about the vague term "isn't good" and the outcomes when salt water contacts fresh-water or land animals/people. With tension to cover the textbook, the teacher overlooked some of the storytelling and possibly significant concepts that underlay their wondering. Stories were often logical and followed naturally from the text, but the reasoning may have eluded the teacher or been dismissed as distraction (as in Michaels, 2005). *Points of leverage* include the importance of student stories, opportunities to share their logic, and explicit guidance to navigate use of stories in school.

Conversing about Content

Ms. Montclair saw the importance of students conversing with each other about everyday life and school texts. When students linked content to their lives and had small group time, they talked about socio-culturally relevant examples that held meaning for them. For example, in social studies unit on government and taxation, Ms. Montclair asked, "how many people, if their parents go to work for 10 hours and get $100, does the boss give them a check for $100?" During small group work about *taxes*, students talked to each other about their own lives and family work, as follows.

Adriana: My grandparents own a Mexican restaurant and gave me a job of working the cash register. When people gave money, I added the taxes. They showed me how to do it.
Nicolina: When you buy something, is it on a receipt and says, "+tax"?
Alexis: [She tells about her mom teaching English to Spanish-speaking people at church. Alexis and her sister babysit during the class. They pay taxes.]

Through opportunities to converse about content, students revealed socio-cultural resources that reflected their Latino heritage and family work, such as ownership of a Mexican restaurant, bilingual translation at church, and child apprenticeship and participation in parents' workplace. These were valuable experiences and knowledge sources that helped students engage with abstract concepts such as *taxation* and make sense of the academic textbook.

In addition to family and community culture, Ms. Montclair noted that several movies were popular and drawn upon by students but represented inaccuracies that contradicted information provided by the textbook. The students' pervasive use of popular culture represented opportunities for discussion, analysis, and engagement by a wide range of students. On one occasion, Ms. Montclair provided an opportunity to discuss a popular movie about which students talked frequently, indicating how its larger narrative shaped thinking in science class. As Gallas (1995) claimed, time to talk gives students a way to further their understanding of scientific concepts. During study of glaciers, Ms. Montclair allotted two minutes at the end of class for talk with peers about *Ice Age*, as depicted in the following excerpt:

Teacher: So many people saw *Ice Age*. Take 2 minutes to talk to a neighbor about the movie and glaciers.

Mona: That's not how it really happened...the movie says...the squirrel put the nut in the ground....

Mona and Andy tell me about Ice Age—that a piece of ice pops up, which makes the glaciers start to move so the squirrel has to run fast. Somehow the nut saves him.

Mona: It's not true because it moves so fast and how can he stick a nut into ice?

During brief conversation, Mona questioned the fictitious aspects and accuracy of *Ice Age.* In science class, she learned precise glacier speeds (e.g., one foot each day) thereby realizing that the cartoon glacier moved too fast to be real. And, in a unit on states of matter she learned that a glacier is ice, which is a hard solid, therefore likely too dense for an acorn to pierce. Thus, the two minutes for discussion provided opportunity for Mona to integrate what she learned in science class and what she saw in the movie. Opportunity for classroom conversation—even without guidance—led to more sophisticated insights about popular culture and science content.

Likewise, the teacher noted that the movie *Pocahontas* was ever-present in the talk and minds of the students during a unit on Jamestown and the Powhatan natives. The teacher's voice can be heard, as depicted in the excerpt below, as she showed an awareness of the differences between Disney's and the curriculum's portrayal of history.

The teacher says that in the movie (Disney) *Pocahontas* marries John Smith instead of John Rolfe as in reality. The teacher plans to engage the kids in some kind of discussion surrounding the inaccuracies of the movie and also show the movie to give them a sense of the larger "narrative" and how it all fits together. She acknowledges that she doesn't know enough about historical details to engage them in an intricate and detailed analysis of the movie. The teacher talks about helping kids bring it all together.

The social studies textbook contained a brief discussion (i.e., three short paragraphs) of John Rolfe and Pocahontas, and Ms. Montclair wanted students to hear the larger narrative of how the figures fit into history and why they were important. She planned to show part of the Disney movie to help students gain a fuller picture of history and to engage students in critical analysis of the movie's inaccuracies. Yet she admitted to her own lack of historical knowledge and discomfort leading deep analysis of the movie, perhaps due to little teacher preparation to do critical analysis. Although the teacher never did this analysis or discussion, she wanted to merge popular culture with social studies to enhance student learning, by using multiple narratives to pull together pieces of information into a larger story. This fits with research on youths' disciplinary knowledge shaped by popular cultural historical narratives (Wineburg, et al. 2007).

Through *science talks* or *history talks* to analyze socio-cultural resources and content, students could make deep connections and engender critical use of resources. Further questions center on how much *time* for classroom conversations would promote extended negotiations of language, content, and student knowledge of everyday life. Additional questions revolve around teacher preparation and specific methods for guiding these critical conversations.

Navigating Ways of Thinking

Ms. Montclair used students' resources to demonstrate that not all texts were alike or

valued equally across settings. Indeed, there are particular ways of using words, communicating values, and thinking that differ across discourse communities (Gee, 1996). In general, scientific ways of thinking are powerful in Western society, including schools, and serve as a type of cultural capital that allows greater access to social positions in society (Bourdieu, 1984). For example, animated movie discourses (such as for Disney) can lead to economic and social power in certain Hollywood communities, but may not lead to success and power in scientific worlds. Ms. Montclair's remarks about "modes of thinking" or acting "like a scientist" could be springboards for further practice navigating across academic and everyday discourses.

In an exemplar from social studies, the teacher described incongruence between popular cultural resources and official discourses of social studies (although she did not use the term *discourse*). On unit assessments, the teacher expected a particular way of evaluating information garnered from a Disney film and from their instruction, as described in field notes:

> The teacher told me that it was funny how several students—mostly girls—answered the question on the test, "Why was it important that Pocahontas married John Rolfe?" with the answer "because she loved him so much." The teacher commented, "They're not thinking in the social studies mode."

Several girls wrote on their unit test that *love* was the reason why Pocahontas and Rolfe's marriage was important in history. The popular Disney movie exaggerated the importance of romantic love in the historical union, and students seemed to focus on this exaggeration when answering the test question. The teacher claimed students were not thinking like social scientists because, in her evaluation, romantic relationships did not matter much in "social studies mode."

In this classroom, doing science or social studies meant following the textbook's language, structure, activities, and content. Part of this framework focused on non-fictional and realistic portrayals of phenomenon. In science, Ms. Montclair juxtaposed realistic and comical renditions in an example about how to draw like a scientist. When students had to create models of shell fossils, she said, "*Tienen 2 minutos. Dibuja A, B y C—la concha—tal cómo hacen los científicos. No una caricatura… lo más real que puedan*." [You have 2 minutes. Draw A, B, and C—the shell—how scientists do it. Not a cartoon… the most real possible.] She modeled her talk by doing two drawings, one of a cartoonish figure and another of a precise informational sketch. Ms. Montclair used cartoons as a counterpoint to demonstrate inappropriate scientific drawing by taking up a popular resource with this age group as a tool to clarify how students should draw in science to work within the expected discursive framework.

Points of leverage are Ms. Montclair's notice of different "modes" or ways of thinking, grasp of academic consequences of unskillful navigation across them, and explicit instruction in translating across cartoons and science. There is potential and importance in explicitly teaching how to negotiate the ways of talking and thinking of different discourse communities that are more or less powerful and appropriate in different contexts (Lemke, 1993).

Implications

In spite of the pressure to cover curriculum and stay on pace, Ms. Montclair used points of leverage to help students make real-life connections, although she clearly had to rush past some students' stories. Within these teaching contexts riddled with tension, there are practices that show promise for effective instruction of children from diverse backgrounds. Twenty-first century classrooms exhibit diversity and, thus, require teachers to take up approaches that harness the potential of children's socio-cultural and linguistic repertoires. These approaches not

only respect and utilize children's cultural practices but also purposefully provide space for ample talk and speech styles. They explicitly instruct students to navigate across academic and everyday ways with words. Twenty-first century teachers value the range of cultural tools (e.g., transnational cultural experiences, bilingual practices, family funds of knowledge from work, popular movies and cartoons) that children bring to bear on their learning (Moll, Amanti, Neff, and Gonzalez, 2005). They also are tuned in to demanding school expectations that require focused, planned, and thoughtful instruction on academic language and speech genres. Teachers who *deeply* take up students' socio-cultural affordances move beyond momentary and surface-level uses of these resources to develop extensive and planned uses of students' assets. Additionally, they embrace multiple speech genres from everyday life and scaffold students' socialization into academic speech genres. This article has identified *points of leverage* that serve as springboards for further thought and development of ways to harness assets that students bring to bear on their learning in school subjects. Even with tensions from accountability reforms, teachers demonstrate promising practices that can be further articulated and reflected upon as we continue to strive to meet the needs of all 21st century learners.

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Critical Inquiry and Collaborative Action: Transforming a College of Education to Recruit and Retain Underrepresented Populations to Teacher Education

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Abstract

This documentary account describes how a task force comprised of college of education faculty and university admissions staff from a medium sized comprehensive university engaged in a critical inquiry process to address the issue of recruiting and retaining underrepresented students in teacher education (i.e., men and culturally and linguistically diverse students). The group examined the issues and challenges associated with an education college's recruitment, application, selection and retention processes. The paper suggests how critical inquiry groups of higher education faculty and staff may support the transformation of policies, practices and relationships needed to increase the number of teacher candidates from non-dominant communities.

The purpose of this documentary account is to describe how a task force comprised of college of education faculty and university admissions staff from a medium sized comprehensive university engaged in a critical inquiry process (Nieto & Bode, 2008; Darling-Hammond, French & Garcia-Lopez, 2002) to address the issue of recruiting and retaining underrepresented students in teacher education (i.e., culturally and linguistically diverse students and men in elementary education). The critical inquiry process engaged key stakeholders from October 2009 to May 2010 in monthly meetings focused on the sharing of theoretical and empirical research in a collaborative task force, the investigation and analysis of demographic and program data, and the development of collectively warranted recommendations (Carroll, 2006). The document produced out of this collaboration was endorsed by college leadership and faculty and lead to the implementation of programmatic and professional development action steps to address critical issues. This account illustrates a promising approach to multi-level institutional change through the development of "critical communities" of colleagues (French, Chu and Yasui, 2010) engaged in "cultural praxis" (Goto, French, Timmons Flores & Lawrence, 2011). This account involves a large teacher education program contending with the nation-wide dilemma of how to achieve a better match between the demographics of the teaching force and that of the P-12 student population.

A key charge of the task force was to embody the promise of the college's mission to "foster community relationships and a culture of learning that advance knowledge, embrace diversity and promote social justice." Over the previous five years, college wide application and enrollment data for teacher candidates of color ranged from 6-15%, in a state with over 37% of the P-12 school enrollment identifying as students of color (OSPI, 2010). A "demographic urgency" became apparent as data were analyzed, revealing a striking mismatch between the population of teacher candidates and the P-12 population (Sleeter & Milner, 2011). While this is a nation-wide problem, Washington State ranks next to last among all states in the mis-match between the demographics of its teachers and students (OSPI, 2010, Peterson & Nadle, 2009).

Since 1971-72, when the percentage or non-white students in P-12 schools was only 7.5%, there has been a dramatic change. The following figure illustrates the contrast in Washington between the fast-changing demographics of the student population and the relatively unchanging demographics of the teacher population.

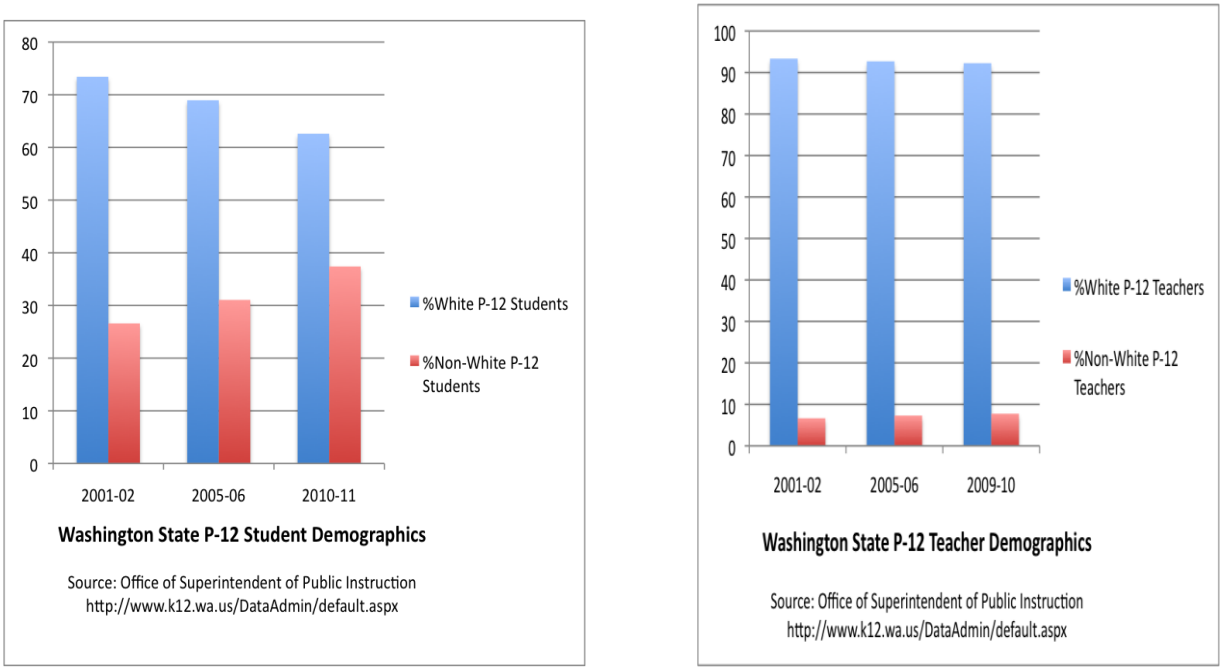

Figure 1. P-12 Student and Teacher Demographics, 2001-02 to 2010-11

The task force was influenced especially by the data indicating the population of non-white, low income students continues to grow and the majority of our teachers are white, middle-class, monolingual, women who have little experience with cultures different than their own (Nieto & Body, 2008). For those who participated in this learning community, the motivation to diversify the teaching profession was based on a commitment to educational equity and the potential for diverse teachers to make a difference for the learning of their students but also for their colleagues and faculty. The purpose of the task force was to review the literature, gather and analyze varied data sources uncover promising practices within the college and elsewhere, and recommend new approaches to increase access to the teacher preparation program for students from non-dominant communities.

Early in the process, task force members collaborated to clarify their shared values and beliefs to define the principles that influenced their interpretations and recommendations. Critical multicultural teacher education (Nieto & Bode, 2008; Timmons Flores, 2007) with its emphasis on equity and on multiculturalism /multilingualism as critical strengths needed for all future teachers to be successful teaching all P-12 students emerged as a common foundation for task force members to begin their work (Sleeter, 2001; Zeichner, 2009). The group shared James Bank's view of multicultural education that its "…major goal is to change the structure of educational institutions so that male and female students, exceptional students, and students who are members of diverse racial, ethnic, language, and cultural groups have an equal chance to achieve academically in school (Banks & Banks, 2007, p.1)". Members embraced social justice

as both a process and a goal to ensure "…full and equal participation of all groups in society…" (Adams, Bell & Griffin, 2007) and they adopted equitable participation as central to any recruitment and retention reform agenda. Finally, Nieto and Bode's (2008) emphasis on the issue of power (e.g., who has it, how it is used, who benefits from this power) was another primary consideration of not only multicultural education in general, but the work of this task force. As noted in the task force report, in addressing the charge to re-imagine the college mission related to diversity and social justice, group members became committed to move collectively beyond a past history of individual heroic efforts and self-assuring rhetoric, to tangible action steps that would result in shifts in institutional culture and practices, ultimately resulting in a change in the demographics of teacher candidates in the college (Chu & Carroll, 2010).

When the task force members looked across the state and nation to identify promising practices, elements of some programs emerged to guide the group's subsequent work. "Pipeline" programs such as the University of Southern California's *Latino and Language Minority Teacher Projects* emphasized recruiting paraprofessionals from specific communities through support from foundations such as the DeWitt Wallace-Reader's Digest Fund's Pathways to Teaching Careers program. The program began in the mid-1990's and certified hundreds of bilingual teachers through an emphasis on student cohorts, on site faculty mentors and seminars with internships in their own schools (Sleeter & Milner, 2011; Zeichner, 2009; Genzuk & Baca, 1998). The elements of successful "pipeline" models resonated for a number of task force members who had been involved at other institutions with efforts supporting bilingual high school graduates and paraeducators to gain access to higher education, complete their degrees and address challenges around recruitment and retention of underrepresented candidates (Chu, Martinez-Griego, Cronin, 2010; Whitebook, et. al, in press).

At the same time, critical dialogue focused the group's awareness on a type of "professional racism," a view that assumes the P-12 achievement gap would be reduced and culturally competent pedagogy would automatically increase if teachers of color increased in numbers (Gay, 2010). The group recognized that the task was not only to increase the number of future teachers whose backgrounds better matched the student population but to better prepare all teacher candidates to teach effectively across cultural, linguistic, and socio-economic differences. However, it was also recognized, as Sleeter and Milner (2011, p. 84), state, "…the research on the value of diversifying the teaching force is too compelling to ignore the potential benefits for students of color and all students". The benefits they describe include that teachers of color can serve as role-models for a greater diversity of students, shift white students' perceptions about the capacities of persons of color, provide appropriate culturally or linguistically-based teaching approaches, and expand the views held within a school's teaching force. Therefore, while a central measure of the group's effectiveness would be an increase in the numbers of candidates of color applying to programs, attention remained focused on change factors that would create a program and culture in the college to support all candidates to teach all children with culturally relevant practices.

Perspectives, Problem Posing and Shared Understandings

The theoretical perspectives that emerged in the work of the task force were informed by the recognition that the teacher education programs operated under an unspoken paradigm by which the college enrolled highly academically qualified candidates and then attempted to increase the sociocultural consciousness of a mostly white student group through experiences,

curricula, and pedagogy associated with their education courses. The task force concluded that it was time to challenge that paradigm by exerting deliberate effort to recruit and retain candidates from underrepresented populations who had both academic and cultural capital that would better equip them with the depth of understanding and a critical consciousness needed to expand the knowledge base of their future students (Villegas & Lucas, 2002).

Task force members chose to frame the work as moving beyond the rhetoric to engage the often unseen and unacknowledged challenging realities of marginalized college and P-12 students (Cochran-Smith, Davis, & Fries, 2003; Cochran-Smith, 2003). Members of the task force shared a concern that too often critical multicultural education theory and practice taught in teacher preparation colleges remained at an intellectual level and was not enacted.

The task force members convened to co-construct a shared understanding based on a review of research and empirical data from the college. The need to use "social imaginations" to "invent visions of what should be and what might be" moved the task force from rhetoric to planning for action (Greene, 1995, p.5). They chose to address the demographic and social justice imperatives of preparing a more diverse group of future teachers for a state in which many P-12 students would rarely or never be taught by someone who was like them in terms of cultural, racial or linguistic background. Institutional data sources, including application, enrollment, and graduation statistics were examined. The data revealed an overwhelmingly white student body that pushed the group to engage with what Cochran-Smith (2003) called the problem of "the recruitment and selection question."

Various key informants were invited by the committee to share their perspectives and experiences. Representatives of two college programs that did show an exemplary record of recruiting and retaining underrepresented students were invited to make presentations to the group. University student services professionals and admissions officers known for working successfully with underrepresented students also contributed. Task force members gathered additional data and perspectives by interviewing various stakeholders, including students of color who were both enrolled in the college and those who had expressed interest upon admission to the university but never applied. Interviews were also conducted with representatives of various student groups on campus to gather perceptions about the college and its practices. Task force members shared their expertise and contributed reflective narratives throughout the process.

Data from these various sources as well as narrative notes from task force meetings, were analyzed using grounded theory in a constant comparison method (Glaser, 1995, Glaser & Strauss, 1967) and narrative analysis (Mischler, 1991, Chase, 2008, Pushor & Clandinin, 2009). Grounded theory uses cycle of analysis to identify themes that emerge in the data, and with each cycle of analysis, key ideas are tested, refined and new questions are raised. Each presentation or interview was viewed through a narrative lens in an attempt to understand the speaker's perspectives and experiences through their words. This approach assumes that narrative is essentially a meaning making activity. As individuals narrate their views they select and sequence events, characterize people and institutions, and position themselves and others to tell stories that convey intentional meanings. The task force meetings and focus groups were designed to create safe spaces for faculty, staff and students to share their experiences and perspectives with a respect for multiple perspectives (Goltz, 2009).

Task Force Critical Inquiry as a Transformational Force

As the transformative implications of the work emerged more and more clearly, task force members also deliberately explored theoretical perspectives on institutional change and the formation of multicultural organizations (Fullan, 2001; Jackson & Holvino, 1988). The members of the inquiry group noted implications of organizational development being "fundamentally about increasing institutional capacity for effecting change" (Latta, 2009, p. 32) and were guided by research on learning in communities of practice (Wenger, 1998) and in collaborative study groups (Carroll, 2005, 2006).

The task force functioned as a critical inquiry group and inspired and supported faculty and staff members as they engaged in the social justice work of diversifying the student body of a college of education. Group members functioned as "critical colleagues," (Lord, 1994), contributing from their diverse perspectives, stretching each other's viewpoints, and engaging in the negotiation of meaning as a community of practice (Wenger, 1998). Facilitators and guest speakers encouraged members to reflect on their individual roles in the university and how that did or did not seem to involve responsibility for recruiting and retaining a diverse group of students.

Teacher education faculty and college admissions staff who participated in the year-long critical inquiry group during 2009-2010 reported on the impact of their experiences through a survey the following winter, ranking it from " limited" to "somewhat" to "very" involved. In describing how their thinking and actions were influenced by their involvement in actions to support the recruitment and retention of underrepresented students to teacher education, their highest involvement was reported as follows (N=11; 6 - Euro-American, 5 - faculty or staff of color):

1. Efforts aimed at increasing the applicant pool by investing in efforts at recruiting, supporting and graduating students who represent communities of color (7 of 11 were *very involved*).
2. Community building among faculty, staff and students (6 of 11 were very involved).
3. Developing or participating in professional development related to issues of diversity for faculty or staff (6 of 11 were *very involved*).
4. Partnering with offices across campus such as Student Services or University Admissions (9 of 11 were *somewhat* to *very involved*).

A focus group conducted in Winter 2011 for these same 11 participants in the critical inquiry group, offered more clarity about how the collaborative inquiry process had impacted these participants and influenced their actions related to recruitment and retention of underrepresented students. Five primary themes emerged from an analysis of the focus group conversations.

Reconceptualizing

Participants variously described "reconceptualizing", or "having a "new lens" or using what they already knew with "increased interest" and credited this to being involved in revisiting ideas from many perspectives each month. Recommendations were made not through voting or pushing through one agenda but through "eventual consensus".

Movement and Action

The second theme noted a feeling that "movement and action" was to be an outcome rather than only rhetoric. One faculty member stated, "We put things on the table and invited perspectives." Another noted that "talking lead to coalescing around purposeful action." A third faculty member felt that the need to make recommendations for change came out of a sense that "creativity flourishes in a place where there is motion and action."

Interconnections

A third thread in the focus group conversations centered on the "interconnections" among the important work of admissions, outreach, teaching, scholarship and service as it relates to recruiting and retaining underrepresented students. A university admissions staff member said, "The fact that we had these conversations…as I talk to future students, I am thinking who can I connect them to, especially with diverse students….We are educators and not just admissions people." A tenured faculty member replied, "The reverse has happened for me. I am more of an admissions person now. I think about how I can assist in that effort….I am more willing to devote time to this (recruitment and retention). I am more willing to be in this territory. It has gotten in my blood. I am more willing to meet with new students."

Developing Allies

Finding support and trusted colleagues who restored faith in "getting to see social justice in action", and seeing "purposeful action" was the fourth theme. One faculty member of color came to see the task force meetings as "hybrid space" that "changed my persona and ended my silence". Others noted the group was unusual in that it was making recommendations for change by thinking from all sides of the problems that were "top down with grass roots bottom up work." Many faculty noted positive influences on their scholarship work by their involvement in critical inquiry and the feeling they could more easily make a rationale for using their time to recruit as "engaged scholarship".

Moral Dilemma

Finally about half of the group felt a "moral dilemma" about working hard to bring students of color to an institution where they wondered if these students would be retained due to "certain things not being in place", and to a lack of relevant diversity in "institutional policies". These faculty members identified the need to create "goals for ourselves" and to set aside time to "reflect on ways to address existing faculty biases".

To illustrate the work of the task force, the authors of this paper drew upon a framework for considering the nature of interactive talk and its relationship to professional learning and the joint construction of ideas about practice (Carroll, 2005). By engaging in various forms of interactive talk featuring a variety of "re-voicing moves," (O'Conner & Michaels, 1993; Carroll, 2005) whereby participants clarified, extended and extrapolated upon each others' ideas, the group gradually generated collectively warranted joint perspectives on issues of recruitment and retention. Having engaged in this extended process, the group's description of its process and its

final report presented a convincing argument that was unanimously endorsed by the college of education's leadership council.

Often, administrative and policy issues like the recruitment and retention of underrepresented students are addressed using generic administrative processes. The college-wide initiative led by the task force described here, took a critical inquiry approach to such work. This resulted in both deeper insight into the nature of the issues, and a considerably strengthened and energized commitment by task force members and those they influenced across the college toward taking action. Just as task force members, through their investigation, became aware of the disjuncture between past rhetoric and action, they themselves developed personal commitments to achieving action based upon the report. The next sections of this paper will highlight two arenas of action generated out of the task force's work. The first focuses on changing the culture of the college through professional development; the second on institutional changes in policy and practice.

Professional Development Shifts Perspectives

The report was endorsed by the dean and the college leadership council, which took steps toward a major shift of perspective in the college featuring an ambitious professional development effort which included the following dimensions:

- Recognizing that the kind of restructuring proposed by the task force involved a "re-culturing" process (Fullan, 2001) for the college that would necessitate more culturally responsive teaching, different pedagogical approaches, and more inclusive course content;
- Supporting the time and space needed for faculty and staff to work together across university departments to re-imagine how their commitment to social justice ideals would require them to increase their capacity for understanding the institutional barriers to access for underrepresented populations of students;
- Recognizing that faculty must engage in new work that would require increasing their capacity for helping all students in navigating institutional culture and academic language and literacy;
- Anticipating that retaining increased numbers of underrepresented students would challenge faculty and staff to create more inclusive and caring environments which build community across various dimensions of difference; and
- Valuing, recognizing and supporting faculty in the tenure and promotion process for contributing to the scholarship, teaching and service related to the recruitment and retention of underrepresented populations to teacher education.

Shared Perspectives Lead to Institutional Action

This documentary account articulates the benefits of critical inquiry groups for solving administrative and policy issues in a way that invites new collaborations and strong commitments to action – things that often remain unrealized in institutions of higher education. It details how engaging together through a process of critical inquiry around common commitments to social justice may move faculty and administrators beyond rhetoric and into transformation of policies, practices and relationships. Results to date include implementation of

a series of action steps to guide the task force recommendations. They include:

- A multifaceted recruitment plan targeted at achieving applications from underrepresented students at a level that matches the proportion of such students in the state P-12 school population over the next 5-7 years;
- The revision of the application and recruitment publicity for entrance to teacher education programs to emphasize the values of the college to support P-12 schools to be responsive to all students;
- The revision of admissions criteria to include a broader conception of intellectual and cultural capital for applicants and a more nuanced college transcript analysis;
- New program relationships and increased collaboration with university admissions outreach staff who recruit underrepresented students to the university;
- The appointment of two senior tenured faculty members to lead the development and expansion of programs for freshmen and sophomores from underrepresented populations interested in education but not yet admitted to the college;
- The expansions of existing peer mentoring programs to target cohorts of students from underrepresented populations and first generation college students;
- The development of a professional development plan for both faculty and staff to transform the culture of the college and make it a more culturally relevant and welcoming environment for supporting the learning of underrepresented students;
- A major grant funding initiative to underwrite the expanded commitment of faculty and student support services to meet the need by all students for more academic support (e.g., partnerships with a college writing center, new designs for education-related courses in the first two years of college) and increased financial aid;
- A planned expansion of the existing college *Center for Education, Equity and Diversity* to serve as a safe, comfortable and welcoming place to connect current and future teachers and college students; as a place for faculty to have courageous conversations and honor different ways of knowing and being; and as a place to provide workshops for test preparation and academic support; and
- Future goals include the alignment and strengthening of recruitment efforts with existing pipeline connections to high schools and community colleges that are already investing in the recruitment, support, and preparation of underrepresented populations for college admission and a systematic examination of retention issues to determine needs for additional support for students on the pathway toward becoming teachers.

Ongoing Critical Collaborative Communities

Encouraged but not satisfied with the initial modest increase of applications by underrepresented students, individual teacher education departments engaged in departmental action projects from October 2010 to May 2011 focused on analysis and inquiry into policies or practices which seemed to be successful in fostering access or retention of a diversity of future teachers. During the same period, many of the participants in the departmental projects, also joined together and examined principles and goals of multicultural education, and engaged in critical reflection on the role of culture and identity in their work as teacher educators. Recognizing that some faculty and staff were already immersed in this subject matter, the professional development sessions (held as full day, monthly sessions in Winter Quarter 2011)

Table 1

Education Program Application Percentages from Self-Identified Students of Color

YEAR	OVERALL - COLLEGE OF EDUCATION	SECONDARY & MASTERS IN TEACHING	ELEMENTARY & EARLY CHILDHOOD	SPECIAL EDUCATION & DUAL ENDORSEMENT
2007-08	10.6%	6.3%	11.8%	18.2%
2008-09	11.9%	13.4%	7%	21.4%
2009-10	14.4%	11%	17%	15.9%
Winter Quarter 2011	21.5% (N=36/167)	19% (N=12/63)	21.25% (N=17/80)	29% (N=7/24)
Spring Quarter 2011	18.4% (N=21/114)	9.5% (N=2/21)	27% (N=18/67)	4% (N=1/26)

were promoted as a means to dialogue with other faculty and staff in a mediated environment with outside facilitators. Latta notes that "because cultural knowledge is largely tacit, it often requires the mediation of an outside facilitator to elicit" (2009, p.41). Facilitators from *Respecting Ethnic and Cultural Heritage* (R.E.A.C.H.), a professional development organization with over thirty years of experience working with P-12 schools on issues of diversity, piloted sessions designed for higher education. The goals of these sessions centered in part on supporting faculty to have common conceptual tools to frame and articulate their departmental inquiry findings. Throughout this period, a series of "Courageous Conversations" about race, culture and other issues of diversity and multicultural education were also facilitated for students, faculty and staff by the college's *Center for Education, Equity and Diversity*.

The departmental inquiry projects from Special Education, Elementary and Secondary Education and Human Services were presented at an all college meeting in May 2011. Each program pursued a unique question and method of gathering and analyzing data. While the results of each inquiry benefited the department from which it originated, presentation across the college offered insights in a way that other departments could benefit from lessons learned. One program developed a new application and interview process, another reviewed program drop out data and developed measures to support students pro-actively, a third program investigated where their graduates taught upon completion and a fourth conducted a student climate survey. The projects were a way to hold "critical departmental communities" accountable for moving closer to the college mission of "embracing diversity and promoting social justice" while also motivating faculty to move from reflection to action. Projects revealed troubling data as well as promising practices and offered new ways for faculty and students to share their knowledge, commitment and assets regarding working with a diversity of children and youth.

Tangible Outcomes

The evaluation of progress toward recruitment and retention goals began in Winter and Spring 2011. Preliminary application data shows significant increases in applications from students of color in the Elementary Education program and in the college of education overall (Table 1). This data is very preliminary and will need to be analyzed over the next several years. However there does appear to be an association between increase in applications of students of color to a specific program and the number of faculty participating in the Teacher Education Recruitment and Retention task force group of 2009-2010. Approximately half of the faculty participating in the critical inquiry group was from the Elementary Education Department which showed the greatest gains in underrepresented student applications. Students admitted to the Elementary Education program for fall quarter 2011 will be over 34% students of color.

Conclusion

The ingredients for shaping the institutional culture to be more supportive of a diversity of students began through the creation of a task force that functioned as a critical inquiry group. The initial task force and subsequent departmental groups became inquiry communities that were able to explore different understandings of the complicated topic of recruiting and retaining a more diverse group of future teachers. The process had an organic and unpredictable nature but has seemed to motivate faculty, as evidenced by focus group narrative evidence, to see recruitment and retention of students as their responsibility. Professional development is often undertaken by university faculty in isolation from the wider college community. This account suggests that creating spaces where faculty can explore different understandings of complicated topics is needed to support critical communities engaged in ongoing cycles of inquiry, reflection and action. The promising application of critical and collaborative inquiry to the re-imaging process of meeting recruitment and retention goals is offered for examination now because of the evidence that this approach to institutional transformation has simultaneously fostered a more nuanced process for inviting applicants to share their "funds of knowledge" (Gonzalez, Moll & Amanti, 2005) and created the parallel conditions among faculty and staff.

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A Co-Inquiry into What Matters Most in Written Reflections: Helping Students Integrate Cognition and Affect

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Abstract

Twenty-first century teacher education places increased emphasis on collaborate evaluation of student work. This study provides the voices of a graduate student in teacher education, the professor teaching a literacy methods course, and a university writing instruction support director as they endeavored to develop a rubric to help pre-service secondary teachers improve their reflective writing. Discussion and short essays, guided by that same rubric, provide conclusions on the part of the co-inquirers about the importance of considering both thoughts and feelings in assessing reflective writing and conducting co-inquiry.

Introduction

Whether we rely on Dewey's (1938) definition of reflection as an "active, persistent, and careful consideration" of any belief or supposed form of knowledge (p. 9) or on a more recent definition as thinking that "turns back – or reflects – on itself" (Geisler & Kaufman, 1989, p. 229), reflection represents both a means and an end, an essential mode and perhaps even a "signature pedagogy" (Shulman, 2005) of teaching and learning in the 21st century. Reflection is not merely what we assign anymore; it is at the heart of what we *do.* With its accompanying goals of metacognition and self-assessment, reflective writing has become an increasingly prevalent genre at the university level in the U.S. (Yancey, 1998) as well as the U.K. (Nesi, 2010) due in large part to its connection to portfolio assessment.

Over the last decade, the stakes for the use of reflective writing as a tool for professional development among today's k-12 pre-service and in-service educators have risen dramatically with new writing requirements for licensure. At each of several development levels of certification, teachers must provide evidence of their abilities to read and interpret the written language of standards and to compose evidence-based portfolio entries that demonstrate how they are "reflective practitioners" – prepared to enable their own students in meeting "model core" standards (CCSSO, 2010; INTASC, 2011; NCATE, 2008). Such writing requires teachers to synthesize evidence of student learning with what they have read and discussed about learning theory. In so doing they must "not only describe what they did and said as teachers, but they are also asked to focus in particular upon how *their* students responded and what they learned, both individually and collectively" (Bransford, Derry, Berliner, Hammerness, & Becket, 2005; p. 83). Recent research reveals that many teachers encounter difficulties in articulating their abilities through this reflective medium. For example, in many instances, earning certification is "as much an evaluation of a teacher's writing about his or her teaching as it is an evaluation of the teaching itself" (Burroughs, 2001, p. 23). These difficulties are often rooted, among other things, in their "inability to represent tacit knowledge in complex classroom settings" (Burroughs, Schwartz, & Hendricks-Lee, 2000, p. 359).

The need to provide teacher-candidates with consistent and transparent rubrics for

assessing reflective writing came to the attention of those of us who teach literacy method courses. In a unit designed to help teacher-candidates demonstrate process writing and analytic assessment as it might be used in the middle or high school classroom, teacher-candidates composed essays illustrating their preparedness to engage in student teaching experiences (McClanahan, Baughn, & Wolpow, 2005). Our students reported that the feedback they received on the descriptive and analytic dimensions of their writing was useful; however, not so with regard to the assessment of their abilities to reflect. Indeed, written reflections were required in nearly all education courses across our department, however, there was little transparency in method or consistency of scoring, and no analytic rubric existed to assess the strengths and weaknesses of the reflective component of student writing.

The Goal of Our Study: Make Implicit Expectations for Written Reflection Explicit

Our university encourages faculty and students to study teaching and learning as genuine research partners, and this study was supported by a small writing research fellowship aimed at advancing this kind of collaborative research. Ray Wolpow, a secondary education professor, invited the department's graduate assistant, also a student in one of his literacy methods classes (Jody Bault), to join him in inquiry. Together, we authored a small writing fellowship grant to develop a rubric as a guide to student reflective writing, and soon convinced the director of writing support (Carmen Werder) to join us in dialogue about the process. Our subsequent writing and conversations have continued in response to the initial research question: "What happens in (a) Secondary Education undergraduate and graduate course(s) when we use a reflective writing rubric that addresses both cognitive and affective capacities/skills in order to demonstrate the proficiency necessary to meet standards for certification?"

The rubric would: a) serve as an explicit guide to help our pre-service teacher-candidates integrate their responses to their experiences in field-placed practica with ideas generated by their readings and discussions of pedagogy texts; b) explicitly call upon our teacher-candidates to reflect "wholeheartedly" and "responsibly" (Dewey, 1938, pp. 31-33) upon previously held assumptions and beliefs necessitating descriptions of personal affect in their written reflections; and finally, c) guide teacher-candidates in constructing "a personal understanding of professional practice" (Bain, Ballantyne, Packer, & Mills, 1999, p. 55) that included the feelings of their students, demonstrating the empathetic trait of "understand[ing] the diversity of thought and feeling in the world" (Wiggins & McTighe, 2005, p. 166).

Familiar with the taxonomic distinction between Bloom's "cognitive domain" (1956), Krathwohl's, Bloom's, and Masia's "affective domain" (1964) and cognizant of Wiggins' and McTighe's "Six Facets of Understanding" (2005), we decided to call for an *integrated* approach; one in which writers would bring both the affective and the cognitive together. Therefore, we chose to define *integrated reflection* as a carefully reasoned examination and evaluation of experience, beliefs, and knowledge which includes both cognitive insights and emotional realizations (see Figure 1). After articulating our definition of integrated reflection, we developed a rubric with three levels of proficiency based on these four components (see Figure 2).

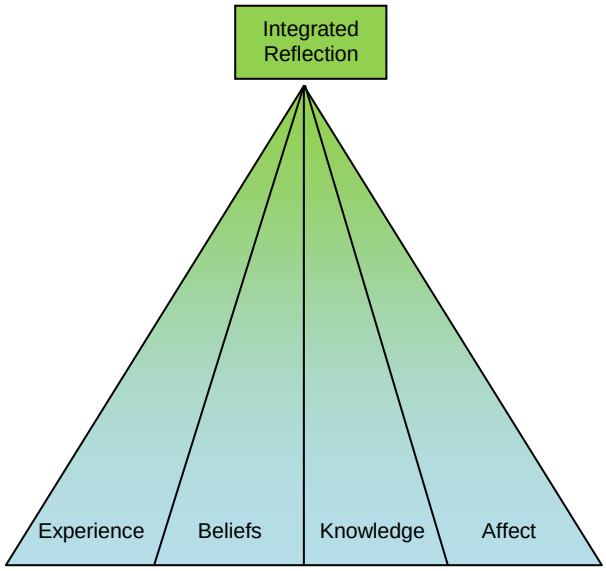

Figure 1. Integrated reflection. Integrated reflection represents the combination of experience, beliefs, knowledge, and affect.

Reflection: A carefully reasoned examination and evaluation of experience, beliefs, and knowledge which includes both cognitive insights and emotional realizations.	
Reflection uses an integrated approach which effectively combines cognitive and affective inquiry.	
___ A. Complete description of previous beliefs, roles of self and others, and other significant contexts. ___ B. Concepts, theories, and feelings addressed are integrated and directly related to practica (field) experience. ___ C. Experience is examined through multiple (alternative) perspectives which clearly help to shape or reinforce understanding of current and future experiences. ___ D. New questions and perspectives are compelling and grounded in experience.	At or Above Standard
Reflective inquiry is attempted where cognition and affect are imbalanced or ineffectively integrated.	
___ A. Incomplete description of previous beliefs, roles of self and others, and other significant contexts. ___ B. Concepts, theories, and feelings addressed are not adequately integrated or related to practica (field) experience. ___ C. Experience may be examined through more than one perspective; however, applicability to current and future experiences is incomplete. ___ D. Some new questions and perspectives are addressed.	Approaching Standard
Reflection relies solely on cognition or affect; an integrated approach is not evident.	
___ A. Little to no description of previous beliefs, roles of self and others, or other significant contexts. ___ B. Concepts, theories, and feelings are not addressed, not clearly integrated, and/or do not clearly relate to practice (field) experience. ___ C. Experience is only examined through one perspective and is missing application to current and future experiences. ___ D. Reflection does not explicitly lead to new perspectives or further questions.	Below Standard

Figure 2. Integrated reflection rubric. This rubric serves as a tool to assess each teacher candidate's successful integration of experience, beliefs, knowledge, and affect.

Method

Participants in this study included 46 pre-service teacher-candidates in four sections of literacy method courses. The four reading responses which we termed QR2's required teacher-candidates to **Q**uote from their textbooks or journals, **R**espond explaining why the quote is salient, generate some "contagious" **Q**uestions inspired by the quote (a contagious question generates discussion and more questions), and then **R**eflect in such a manner as to integrate practicum experience, beliefs, knowledge and affect. The culminating Integrated Reflection required candidates to draw on their learning from previous QR2's as well as from the rest of the course. We informed teacher-candidates in the literacy methods courses that the same rubric would guide our scoring of all these assignments. We also familiarized teacher-candidates with the rubric through in-class verbal explanation, provided sample reflective essays, and using the rubric, gave them the opportunity during classes to provide each other with feedback. Graduate assistants were available to provide tutorial assistance and also conducted interviews with students in order to discern the underlying reasons/causes of strengths and difficulties.

Findings

In the early stages of this study, we observed that writing about feelings was often a challenge to those teacher-candidates with extensive training in the "hard" and social sciences. For example, when prompted to include the first person pronoun as part of a reflection, one teacher-candidate responded, "Are you sure? You know we are discouraged from doing that in our other course. We have been trained to write 'objectively.' " What is more, for some, authoring statements of feeling had had no place in their studies to that point. Some teacher-candidates struggled to express their caring, finding the communication of this kind of affect an unexpected challenge. Take, for example, the following excerpt from a reflective entry written by a pre-service graduate student (a future physics/math teacher) who had been told by one of his students that he "didn't seem to care":

> I guess I have always struggled showing emotion and having my body language reflect my feelings. . . My first thought was that I am going to have a hard time with this aspect of the job. I am not great at showing emotion and I think that I may struggle doing this. . . I worry that my demeanor might make me come off as cold in a way.

In their reflective writing, others struggled to use affective language and instead used language almost entirely from the cognitive domain. Often, when these writers did attempt to use affective language, it was inaccurate. For example, the common frame "I feel that . . ." usually failed to describe an affective experience and would have more accurately been framed by the cognitive phrase "I think that . . ." Lacking the necessary vocabulary seemed partially to blame – affective language is not often part of our academic lexicon, thus some had trouble getting more descriptive than "blanket" feeling words (such as "sad" or "upset").

We were able to alleviate this issue in part by providing affective vocabulary lists, which assisted our students when writing in the affective dimension. In the following excerpt, Alicia (pseudonym) struggles to use affective language appropriately and to make the connection between cognition and affect. In response to a quote from the class text, "Every teacher should be, to a certain extent, a teacher of reading and attempting to integrate it with her/his experiences

in the field" (Wolpow & Tonjes, 2006, p. 84), Alicia writes:

> Communication knows no boundaries and that is why I wholeheartedly agree with the statement that all subject areas contribute to reading comprehension and this matter should be more directly implemented and assessed within every school. However, as much as this goal is worthy of great attention, I worry that it cannot or will not be integrated into every school. In essence, among other reasons, this would mean more teacher preparation courses for teacher-candidates to feel up to the job of teaching literacy content in their field. It would also mean that all the teachers not currently capable of contributing to their students' reading comprehension would somehow be required to find the time and effort to do this.

When compared with the reflective standards set forth by the rubric, Alicia effectively examines this issue from more than one perspective. However, she uses affective language when not actually referring to feelings ("I worry that . . ."). The reader of this reflection can gather a great deal of what the teacher-candidate *thinks* about the cross-curricular responsibility of reading comprehension, but the reader is left wondering what she *feels* about the subject. Note the significant change in this excerpt in one of Alicia's later QR2s:

> As a future educator, I am concerned that I will not be able to address every student's needs in a way that fosters a positive community of engagement and learning in my classroom. More importantly, I question my role as an educator in "solving" or attempting to solve all the background problems my students will have and bring into my classroom. . . . [A]m I an educator or counselor? When is it enough that my students come to class and when is it enough when they learn something, anything? . . . But how do my ideals of respect, reason, and relationships differ from my students'? What I hope for as a teacher, is that building respectful, flourishing communities within my classroom will improve learning and engagement in my content area. However, with all honesty, I believe that I personally cannot help every student and that should be ok.

In this entry we found a more complete description of Alicia's beliefs as well as a discussion of her "roles of self and others" within the specific context. She is able to lay bare, in writing, an affective connection with the students, embedded with cognitive insights from class readings and discussions.

Improvements in integrated reflective writing, as quantified by higher rubric tallies, continued throughout the quarter as we looked for ways to help teacher-candidates express both their emotional and cognitive realizations. Acting under the assumption that teacher-candidates would be more willing to articulate their feelings to a peer rather than to the instructor who assigned their grades, Jody Bault conducted face-to face interviews. Teacher-candidates explained how they anticipated that written reflections might enhance their learning experiences both inside the teacher preparation courses and out in the teaching field. Note the following response from a future math teacher as he attempted to articulate his challenge in writing reflectively in the integrated way we expected:

> I'm not the type to write my feelings or my thoughts about things, and so I'm struggling

> to learn how to journal. When I teach, this will be especially helpful. Knowing the difference between the cognitive and the affective domain and what it means to write in both helps me [to be real with my students].

Using information garnered through these interviews, we were able to improve the rubric and devise strategies to improve instruction for our fifth/culminating writing assignment: the Final Reflection. Here we asked teacher-candidates to delve more deeply into a particular literacy-related challenge in the field. Our prompt and checklist required that they describe the aspects of a literacy assignment carefully, closely examining the role that their own perspectives, beliefs, and expectations played in the interactions, and provide student evidence of learning. We assessed these final essays using a combination of this checklist and our improved rubric.

When reading first drafts of Final Reflections, we often had to push our writers to go further. For example, Samantha's (pseudonym) initial draft, reflecting upon her experience as a Caucasian female working at a Native American school, stopped short of an affective response by simply stating that she felt "like an outsider" and a little "anxious." Samantha was aware that this somewhat negative emotional state may have unintended consequences when working with these children, and her inability to reach a comfortable state of mind even after several weeks was a constant source of frustration. When prompted to explore her anxiety, Samantha's final draft probed at the heart of the undesirable emotional response, allowing her to articulate a sense of peace within that educational context:

> But as an "outsider", this young woman feels out of place and anxious in being at the school, an unwelcome "guest" uncontrollably emitting an air of superiority. My physical presence on the reservation, red hair and pale, pale skin, somehow confirms historical notions of white dominance over Native Americans. . . . [I feel] the need to move a little faster than normal and hide the cultural differences I've unwittingly brought with me. For there is a vast discrepancy between my life and theirs, right? At least that's what the small, indiscernible voice tells me every time I arrive . . . So I may always feel like an outsider as I weave my way out along the bay to what seems like another world, but I am an outsider only with the best intentions for providing and receiving opportunities to learn and, for now, that is enough for me.

Overall, as indicated by an improvement of more than 25% in rubric scores on later writing assignments the vast majority of our teacher-candidates who initially struggled to write integrated reflections were able to improve the quality of their integrated reflective writing by the end of the quarter. More importantly, the content and quality of their culminating essays provided substantive evidence of reflective practice, while demonstrating the learning of their k-12 students.

Discussion: Why the Struggle to Articulate and Integrate Affect?

As we repeatedly read entries articulating the struggles of teacher-candidates to integrate affect and cognition into their reflections, we three co-inquirers engaged in discussion around two key questions: Why is it that many educators (including our colleagues) choose to focus primarily on the cognitive subject matter of curriculum and methodological dimensions of instruction to the exclusion of the affective dimension of teaching and learning? And, why don't

high-stakes tests measure affective dimensions of learning and teaching? We summarize three of our assertions, limited as they are, with the hope they might provoke further discussion among those who teach reflective writing to meet certification requirements.

Perhaps teachers and those who write the high-stakes tests neglect affective dimensions because this approach mirrors how they were trained. Psychologists Yanchar and Hill (2003) point to the absence of ontology in the dominant models of psychology that have framed, either implicitly or explicitly, most educational research into learning and teaching. They assert that neglect of subjective understandings of "existence" and "beingness" results in researching for "objective" methodological solutions to problems, rather than an ontological explication which includes "psychological phenomena such as intentionality, agency, morality, [and] spirituality" (p. 12). Whether or not this downplaying of the affective is an unintended result of education and training, teachers are not the only professionals challenged to come to terms with the bifurcation of thought and feeling. Physicians are sometimes guilty of clinically treating symptoms, not treating the whole person (Siegel, 1988). Attorneys sometimes seek remedies that are exclusively punitive or monetary in nature, neglecting remedies that address the spiritual and moral needs of those victimized (Rosenbaum, 2004). A quote, often attributed to Albert Einstein warns, "Everything that can be counted does not necessarily count; everything that counts cannot necessarily be counted." Indeed, affective considerations of losses and gains are difficult to measure and thus, inter-rater reliability is hard to obtain. Bottom line: the things that matter most to our students may not be aligned with what is "measured most" on tests of adequate yearly progress.

Perhaps some educators treat writing with affect like a Pandora's Box, not to be opened because unforeseen troubles will emerge. With large numbers of students in today's classrooms, there is no time to wrestle openly with emotions. It's one thing for a teacher to check for completion of assignments, for accuracy of answers, or for correct use of conventions. It's entirely another matter to expect an instructor to have the time and emotional investment to read for emotional realizations and to respond with empathy. Truly, empathetic response to another's experiences (e.g., frustration, anger) can result in considerable personal upset to the teacher. Given the number of students who are needy, the lack of resources to meet those needs, and the fact that standardized tests don't measure whether or not students value what they are learning – this additional instructional expectation seems too much. However, most experienced teachers would agree that successful teaching requires high levels of empathy, especially with underachievers. In the words of folk singer Tom Rush (2009), "I've learned that the heart has reasons that reason cannot know." Empathy enables teachers to know students more deeply and thus understand a full scope of their learning needs.

Perhaps an answer to our questions may be found with those who argue time directed to the affective will create deficits in curricular rigor. We realize that the body of knowledge continuously expands on this issue, and we are not suggesting that subject-matter rigor is unimportant. However, the focus on content without affective relevance can leave k-12 teachers in the unenviable position of having to motivate their students to develop knowledge and skills (cognition) that they don't value (affect).

So how should K-12 teacher-candidates motivate today's students to make these valuable connections? An aphorism heard frequently among teachers in the public schools is that students won't care about what you are teaching them until they know that you care about them. We can show students we care about what matters to them by paying particular attention to what students are thinking *and* feeling, and then allowing this knowledge to shape our instructional

methodology (Durlak, Dymicki, Taylor, Weissbert, & Schellinger, 2011). By deliberately inviting students to study their own learning, we can explore a territory where educators cannot venture alone: the discovery of what happens in our heads and our hearts when we interact in our classrooms.

Conclusion

In an effort to emulate what our teacher-candidate writers learned, we co-authors will now explain – in three Final Reflections – the conclusions we each draw from our co-inquiry. Like the students we taught, we draw on the rubric developed during the study to guide our writing. We will leave it to our readers to see if our reflections demonstrate an ability to integrate content from the field with the texts and our discussions, and to bring together the mind and heart.

Authors' Reflections: Three Perspectives

Jody Bault, Secondary Education Graduate Student

I am a crier. Commercials, sentimental music, and sometimes even a beautiful scene can make my eyes well up with tears. While I can now admit this inclination with a smile, I have not always done so. I do not tell people, for instance, that I used to frequent my middle school's restrooms and nurse's office to cry in relative peace, or that my elementary school teachers regularly called home to make sure everything was okay. Let's just say that it does not help your social life to be a crier – at one time, my greatest wish was to be able to control my emotions.

Finding my friendships in a constant state of chaos, I plunged myself into my schoolwork, an area where I had always found success. I found stability while hard at work on a sheet of math problems or deep into a book, reading about other people's problems. I learned to adhere to a certain "Code" with which I was able to keep a high GPA: (a) Find out what the teacher wants, and (b) Perform to that level. Using this Code, I developed strong scholastic skills, such as memorizing a long list of facts in a short amount of time. I was thrilled when one teacher showed me the formula for writing academic papers; as long as I avoided creative writing classes, I never again had to leave this intellectual comfort zone.

They say that when things seem too good to be true, they probably are. Near the end of my junior year in college, I became increasingly dissatisfied with myself as a learner. I lacked intrinsic motivation, I procrastinated until the very last minute, and I never worked harder than I had to. As a result, I remember few of my papers that I've written and even fewer of those facts I could once rattle off with ease. After working with my co-authors, I now realize why my learning was never meaningful to me. I was always operating for someone else and sliding under their effort radar, certainly never reflecting upon my experiences to examine how *I* fit in. Furthermore, I was operating exclusively in the cognitive domain while at school, having learned firsthand the disastrous potential of emotional investment if I lost control.

Since becoming aware of the lack of affect in our current academic culture, I have noted further illustrations everywhere. I have heard professors attempt to speak of affective concerns using cognitive terminology. I have heard the tongues of educated people, witty words at their forefront, become paralyzed in fear when someone in the room is crying. When the conversation shifts back to a safe, cognitive space, these same tongues loosen with sweet relief. Why does our

culture encourage people to fear their raw undersides? As a future educator, I need to ask myself whether I consider it wise to continue to expect future generations to suppress that which they can't explain in an even voice and with empirical evidence. Further, how can I hope to facilitate an expression of affect in my future students if I am not myself regularly engaging in reflective writing, the medium with which I can dredge up those feelings – even the hurtful feelings – that would otherwise lie dormant within my own consciousness?

Integrated reflection is the cornerstone which empowers both teacher and learner student to take control of their learning, and thereby find meaning and passion. In our current climate of standardized testing and college-bound programs, cognition-heavy teaching is here to stay; students will eventually absorb the intended message: personal perspectives and feelings do not belong in the field of academia. Meanwhile, today's schools are rampant with apathy. If educators want students to *value* their education, we must consciously work toward a new, reflection-based practice with a truly integrated approach. In these discussions, we authors keep coming back to the same core idea: What matters most to teachers should stem from what matters most to our students, even if it means embracing the criers within ourselves.

Ray Wolpow, Secondary Education Professor

My doctoral research was a study of three award winning teachers, survivors of pervasive and prolonged trauma, (one was a survivor of Auschwitz, the second a child-survivor of an accident that left him physically deformed, the third affected by sexual abuse) – all seeking to learn how they helped their own students, especially those struggling with modern day trauma in their own right, to persevere in school. Putting their unspeakable stories into words and onto paper challenged me to practice what Ruth Linden (1993) called the "first ethical principle" of this kind of research, "I must be prepared to be at least as vulnerable and honest as I ask them to be. I must be willing to stand beside them, not to speak for them, but to speak for myself and with them" (p. ix).

By way of support, my advisor recommended that I keep a "reflective journal" of my thoughts and feelings as part of my field notes. In this writing, I discovered that finding words for the understandings of my informants was often an impossible task. After all, they were describing events and feelings well beyond anything I had ever experienced. Nonetheless, finding words to represent what it was like to empathetically stand beside my informants was within my grasp so long as I integrated experience with theory, and affect with cognition.

This discovery transformed my understanding of teaching and learning. I borrow the attributes of monocular and binocular vision to illustrate the essence of this understanding. In the case of monocular vision, the observer who views a moving object with only one eye is provided a very clear image. This image, however, lacks depth and can thus lead to errors in perception. With binocular vision, the observer viewing a moving object with both eyes acquires depth, but also acquires substantial distortion. Boundary problems, manifested by the blurring caused by the overlapping of two distinctly different singular visions, requires the brain to locate images in the contexts of time, place, thought and belief. By analogy, to view an experience or theory solely through one lens, whether that lens is cognition or affect, may lead to a "clear picture" that lacks depth and may be in error.

The final written reflections of the teacher-candidates in this study demonstrated the affective language of empathy, well integrated with the cognitive language of theoretical understanding. The confusion manifest by boundary problems led them to further reflective

inquiry. As a result their entries revealed their recognition of and responsiveness to the needs of their students as well as to their own needs. Certainly this kind of writing will strengthen their abilities to meet standards for certification as well as their ability to meet the needs of their students. However, I am left wondering how effective this methodology will be over time. With multiple, often unreasonable, demands on their time, how can they sustain this practice? How can I? The questions alone leave me feeling fearful and overwhelmed.

As instructor of this course, I had a very clear monocular picture that lacked depth of my teaching and how it affected student learning. It was a picture not without misconception on my part. As I partnered with my co-authors, it became clear that we had overlapping and distinctly different perceptions of meaning. In the negotiation of our interpretations lay the potential for improved learning and teaching. Co-inquiry provided opportunities for us to embrace the thoughts and feelings of others in ways that changed each of us irrevocably. How will I sustain this practice of integrated reflective co-inquiry?

Reflective writing and co-inquiry can and should be a forum for those who recognize that we teach in difficult and divisive times, in which children, parents, teachers, researchers, families, and communities are left with monocular images, thoughts, and feelings that are fragmented and disconnected. For these reasons and more, reflective writing can and should emphasize heart and mind, process and content, difference and wholeness. If not now, when?

Carmen Werder, Writing Instruction Support and Writing Research Fellows Director

While my interest in reflection initially stemmed from my work in rhetoric and composition, as a Carnegie Scholar (2005-06) I had the opportunity to conduct research in my own communication classroom while in the company of teacher scholars from across disciplines as part of a Carnegie Academy for the Scholarship of Teaching and Learning (CASTL) initiative. That experience showed me the value of co-inquiry on learning across disciplinary boundaries. I also had the pleasure of working with another CASTL initiative, Student Voices, on partnering with students in studying teaching and learning (Werder & Otis, 2010). These experiences prompted me to develop the Writing Research Fellowship program and opened the door to work with faculty and student scholars of teaching and learning like my co-authors. Working with them on this study has deepened my understanding of how co-inquiry with faculty and students across disciplines can significantly advance research on writing in the disciplines, especially on assessment.

But this co-inquiry has taught me even more. Professionally, it has startled me into realizing that I have been neglecting a crucial aspect in evaluating my students' reflective writing: the affective dimension. While I've used a "sentipensante pedagogy" directed at wholeness (Rendon, 2009), I have not really *counted* the emotional dimension in evaluating the student reflective writing that I've assigned for so many years. And while I may not use the rubric that my co-authors have developed for their teacher-candidates, I have already begun to integrate the affective component explicitly in the prompts and evaluation schemes I'm using with my own students.

The experience has caused me to reflect on why I – as a composition teacher and writing program administrator – might have resisted equal attention to the affective dimension in evaluating reflective writing. Perhaps in an ongoing effort to show that we are a serious discipline in our own right with serious intellectual interests and aspirations, we compositionists have privileged the cognitive. Perhaps that skewing helps explain why we were so receptive to

the influence of cognitive psychology at one time (Flower & Hayes, 1981). Furthermore, this slighting might result from a gendered issue in that so many composition teachers are women who may tend to veer to the cognitive dimension in an ongoing effort to show evidence of our intellectual capacity. These considerations have helped me understand why I may have neglected counting the affective responses in assessing students' reflective writing and have also enabled me to see how I can integrate both the cognitive and the affective.

But how has this research experience made me feel? Initially, I felt disappointed and even remiss to realize that despite my long-time experience in teaching writing, I'd slighted a component of writing assessment that my secondary education colleagues understood so well. But, now, I feel only blessed.

Personally, I feel affirmed in acknowledging how much I truly care about my colleagues and my students. Matters of the heart are very important to me, and I work to listen to others and respond to their intellectual and emotional needs with care and empathy. As a young child I learned to push down my feelings because if I didn't, the fear and anguish I felt when my father was having a violent episode would have been overwhelming. I learned to favor my brain and my ability to think through and over the sadness and fear. I learned my lessons so well that even though I can elicit those feelings easily for others, I have guarded my own. During the course of this study, I have learned to let down my guard and look forward to leaving it down.

This co-inquiry has helped me take to heart (as well as to head) what Parker Palmer and Arthur Zojonc (2010) mean when they say that "collegial conversations" can transform the academy and that they are at the "heart of higher education" and all education for that matter. Working with my co-authors has reminded me that my feelings matter, too, and I've learned to articulate them better. And most importantly, this work has reminded me that I need to *count* them for student writers for whom they likely matter the *most*.

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Towards Balanced Assessment of Student Teaching Performance

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Abstract

Assessment practices in schools have undergone dramatic changes over the last decade, and applying this knowledge to the assessment of student teachers is a challenge currently facing teacher preparation programs. K-12 assessment has moved towards a "backwards design" approach, greater student involvement, a wider range of strategies, and assessment systems that balance summative and formative assessment. However, the assessment of student teaching performance during field experiences has often overemphasized summative assessment, collecting data for making judgments, at the expense of formative assessment, gathering information to improve student teacher performance. Recently, one institution recognized the need to reexamine its approach to field experience assessment based on the thrust towards 21st century education, the growing knowledge base in assessment, and feedback from its educational partners. The article is a case study of this improvement initiative: the context, process involved, the outcomes of the improvement process, and implications for teacher education.

The basic premise of the current impetus towards 21st century learning is that the world has undergone so fundamental a change over the last few decades that what people learn and how they learn it has likely changed forever (Trilling & Fadel, 2009). Schools must be re-designed to meet present and future needs of students, with students working collaboratively in teams on learning projects, solving real-world problems, and building their critical thinking, communication, and innovation skills. A complex 21st century curriculum with a heavy focus on skills calls for movement towards a more comprehensive and balanced approach to assessment at all levels of education (Partnership for 21st Century Skills, 2009, 2010). Teacher preparation programs will play a key role in the necessary educational reforms, and assessment strategies for 21st century knowledge and skills will be a crucial component of not only the curriculum, but also the assessment practices of teacher education (Partnership for 21st Century Skills, 2009, 2010).

At the same time that momentous changes in technology, the economy, and the workplace are driving the 21st century skills movement, great strides have been made in our understanding of effective teaching and learning, and a consensus has emerged around professional standards for teachers that reflect this knowledge base (Darling-Hammond & Bransford, 2005). Assessment practices in schools, for instance, have undergone dramatic changes over the last decade. The traditional approach to assessment typically involved a narrow range of assessments focused on collecting information on student achievement for grading purposes, often misaligned with curriculum outcomes, with a mainly passive role for students. The current understanding of classroom assessment emphasizes balanced assessment—using a variety of assessment practices to both measure learning and foster gains in learning, while tightly linking assessment to outcomes, and actively engaging students in assessment (Black & Wiliam, 1998a, 1998b; Black, Harrison, Lee, Marshal & Wiliam, 2003; 2003; Davies, 2007; Stiggins, 2000; Stiggins, Arter, Chappuis & Chappuis, 2006; Sutton, 1995). Although teacher

education programs have, in many cases, adjusted the curriculum of teacher education and embraced professional standards to reflect this approach to assessment, the actual practices used to assess student teacher performance have often lagged behind. This was the situation in a Western Canadian teacher preparation program a few years ago. Spurred on by new provincial assessment standards for student teachers and partnerships with professional organizations, there was a recognized need to improve the assessment of student teachers. A team of faculty members was tasked with creating a better alignment between assessment in the field experiences component of the program and what student teachers were learning about assessment in their courses. This article is a case study of this improvement initiative: the context, process involved, the outcomes of the improvement process, and some implications for teacher education.

Changing Ideas and Practices in Assessment

Assessment in K-12 Education

Over the last decade or so, there has been a major re-thinking of educational assessment and evaluation in North America and elsewhere (Black & Wiliam, 1998a, 1998b; Black et al., 2003; Davies, 2007; Stiggins, 2000; Stiggins et al., 2006; Sutton, 1995). A changing society has placed greater demands on teachers, with more diversified classrooms and broader, more complex 21st century curricula in a range of school subjects. In the meantime, research has provided a more complex view of learners and learning and a wider range of well-tested teaching and assessment strategies. The aims of assessment have greatly expanded from simply evaluating work and assigning grades to a much wider range of purposes, such that the overall thrust is away from determining and reporting grades and towards improving learning by integrating assessment with everyday planning and instruction. Furthermore, the work of Wiggins and McTighe (2005) on understanding by design or "backwards design" has had considerable influence on educators' efforts to align assessment, planning, and instruction with educational outcomes.

In Western Canada, and Alberta in particular, this shift in ideas has had a significant impact on policy and practice in school assessment. Provincial teaching standards in classroom assessment for in-service teachers (Alberta Education, 1997), detailed standards for pre-service and beginning teachers (Alberta Education, 2006), and a recent report outlining a long-term vision for Alberta's 21st century education system (Alberta Education, 2010), exemplify the call for balanced assessment, student involvement, more valid assessment tools and techniques, and effective communication and reporting of assessment results. In addition, the Alberta Initiative for School Improvement (Alberta Education, 2010), a provincial government initiative which funds projects to improve student learning, has had a strong focus on improving classroom assessment over the last several years. Overall, it is fair to say that there is a strong emphasis on improving K-12 assessment practice in the province of Alberta.

Assessment in Teacher Education

In North American teacher education, it seems that more attention has been paid to what teachers need to learn about assessment than to rethinking how student teachers are actually assessed. In the U.S., for instance, the NCATE Standards for Student Teaching (National Council for Accreditation of Teacher Education, 2008), call for decisions about student teacher

performance to be based on multiple assessments made at several points, and for the establishment of fair, accurate, and consistent assessment procedures. The National Academy of Education Committee on Teacher Education (Darling-Hammond & Baratz-Snowden, 2005) suggests that successful student teaching requires clear standards for performance, adequate opportunities for practice with continuous formative feedback and coaching, and structured opportunities to reflect upon and improve practice. Bransford, Darling-Hammond, and LePage, (2005), and Sheperd, Hammerness, Darling-Hammond, and Rust, (2005) advocate that beginning teachers learn how to use standards to construct assessments, employ a large repertoire of formative assessment strategies, and help students learn to self-assess. However, there is relatively little focus in these documents on improving assessment of student teachers beyond expanding the range of assessments to include performance assessments, and placing a greater emphasis on self-assessment using portfolios.

Similarly, in the report of the AERA Panel on Research and Teacher Education, discussions of related research focus on the structure and outcomes of teacher preparation programs (Zeichner & Conklin, 2005) and the impact of methods courses and field experiences on student teachers' educational beliefs and practices (Clift & Brady, 2005). Touching more directly on the assessment of student teacher performance, Castle and Arends (2006) and Arends (2006) concentrate on the development of effective performance assessments. The authors do describe assessment of teaching performance (e.g., observations, videos, and microteaching), but most of the performance assessments involved course-based tasks such as lesson plans, unit plans, case studies, projects, portfolios, and reflective journals. In all, there appears to have been relatively little attention paid to systematically applying the research on K-12 assessment to the assessment of student teachers' teaching performance.

A Case Study: Improving Assessment in Teacher Education

The Teacher Preparation Program

The university is a mainly undergraduate institution with a student population of around 8000. The teacher preparation program is offered either as part of an undergraduate combined degree program, or as an after-degree program, with about half of the 216 students enrolled annually pursuing each option. The combined degree program is a five-year 50-course program in which students complete at least 30 courses in a bachelor's degree in their major and 20 semester courses in a bachelor of education. Students with a completed degree complete a four-semester, two-year program. Before being admitted, all applicants must successfully complete an Orientation to Teaching course which provides an opportunity for mentor teachers and faculty to assess candidates' teaching potential and for students to spend substantial time in the classroom and find out more about the teaching profession and its challenges.

The program places a high priority on field experiences, in that each student accumulates 28 weeks of student teaching, and faculty are heavily involved in practicum supervision as university mentors. During their program, education students take three professional semesters. The first professional semester is focused on basic teaching skills across all subject majors, and requires a six-week teaching practicum at the elementary or middle school level. In the second professional semester the focus in both coursework and the six-week practicum is on the student's teaching major. Finally, in the third professional semester, or internship, students are assigned to a school full-time for 15-16 weeks with a 50% teaching: 50% professional

development assignment. Graduates of the program are eligible for certification to teach from Kindergarten to Grade 12 in the Province of Alberta. It should be noted that there are no national standards or accreditation process for teacher education in Canada along the lines of the American NCATE standards (National Council for Accreditation of Teacher Education, 2008), and teaching standards are developed at the provincial level. In Alberta, the *Teaching Quality Standard* (Alberta Education, 1997) sets out the standards for graduates of teacher preparation programs as well as for in-service teachers.

The Need for Improvement

Prior to 2005, the assessment system for field experiences in the first two professional semesters consisted of the following elements: (a) daily observation of teaching performance followed by oral and written feedback from teacher mentors, (b) weekly observation of teaching performance followed by oral and written feedback from university mentors, (c) completion of a formative competency checklist by teacher mentors at intervals over the practicum, (d) the completion of a summative field experience report by the teacher mentor and university mentor at the end of the practicum. Informal comments from teacher mentors, principals, faculty mentors, and student teachers indicated that although the existing system was satisfactory, there was a need for a more valid and reliable method for gathering information and making accurate judgments about student teaching performance.

For one thing, the standards and criteria contained in the formative instrument did not accurately reflect current "good practice" in K-12 education or emerging 21st century skills as embodied in provincial teaching standards and the literature. Critical aspects of student teaching performance in areas such as classroom management and leadership skills, professional career skills, and ICT integration skills were poorly addressed or not addressed at all. Other key areas of performance such as planning and preparation, assessment, and instruction needed updating to reflect advances in the knowledge base in curriculum design, differentiation, and assessment as well as to bring the standards in line with current provincial standards and program outcomes (which had been strongly influenced by the 21st century approach). Another issue raised by stakeholders was the vague or ambiguous wording in some of the standards. Teacher mentors and faculty mentors reported that in some cases it was difficult to fail poorly performing students or to fully recognize and document outstanding teaching performances using the standards in the existing assessment instruments.

In addition, stakeholders indicated that the format and structure of the instruments for assessing teaching performance in the field needed adjusting. They pointed out that the existing formative instrument did not facilitate regular and effective feedback by mentors and peers or regular self-assessment by student teachers. The checklist scale for rating teaching performance, consisting of a continuum from Weak to Strong, was regarded by respondents as inadequate for diagnosis, feedback, and decision-making. In addition, stakeholders pointed out that the summative instrument did not list the standards being addressed or include a rating scale, but merely spaces for comments and for recording a grade of Pass, Fail or Incomplete.

The Improvement Process

The process for improving the assessment of first professional semester student teaching performance was a fairly complex one, consisting of several stages: (1) consultations with

stakeholder groups, (2) research on relevant teaching performance standards and assessment design, (3) revision of standards, (4) redesign of assessment instruments and procedures, (5) feedback on new instruments and procedures from stakeholder groups, (6) piloting of new instruments and procedures, (7) further adjustments to instruments and procedures based on stakeholder feedback and the piloting process, (8) implementation of an improved assessment system for teaching performance. This process was carried out over a two-year period by a design team comprised of program administrators and the four professional semester coordinators, including the author, who, at that time, was the Teaching Internship (PSIII) Coordinator.

The consultations carried out before and after the re-design of the teacher performance assessments (stages 1 and 5), involved five focus groups (N = 5 to 20 participants) conducted with groups of faculty members, local and provincial representatives of the provincial teacher association, and regional school district administrators. The guide questions for the focus groups solicited feedback in three areas. They were: (a) effective and successful aspects of the present practicum assessment system (*What do you like about the present system? What is working? What should we keep doing?),* (b) ineffective aspects and areas for improvement (*What don't you like about the present system? What isn't working? What should we stop doing?*), and (c) concrete suggestions for improvement (*Which standards should we add, remove or modify? How should the assessment instruments be structured and formatted? How can we improve assessment procedures in the practicum?*).

The research and development phase of the process (second and third stages) was carried out by subcommittees of the team working on the various areas of teaching performance such as planning and preparation, instruction, classroom management, assessment, and professional standards. Besides the provincial teaching standards and input from stakeholders, major points of reference included Danielson's teaching framework (1996), Wiggins and McTighe's (1996) work on backwards design, Evertson and Emmer (2003) and Bennett and Smilanich (1994) on classroom management, and assessment ideas from the Alberta Assessment Consortium (2004), Black et al. (2003), and Stiggins (2000). After several months of vigorous debate and deliberation, a consensus was reached on design of the instrument and the standards to be used.

Following further consultations with faculty, teachers and administrators and additional revisions of the instruments and assessment procedures, the new assessment system for the Professional Semester One Practicum was field-tested in Fall 2005 with 180 mentor teachers and their student teachers. Mentor teachers were provided with the new instruments and a set of suggested guidelines for use before the beginning of the practicum (University of Lethbridge, 2007a). University mentors attended workshops explaining the new instruments, standards, performance levels, and guidelines for use, with a view to sharing this information with their assigned teacher mentors.

At the end of the PSI practicum, a user survey was used to solicit feedback from mentor teachers on the assessment instruments. Respondents (N = 116; return rate = 64%) strongly agreed or agreed that the new formative assessment form was clear and easy to understand (91%), easy to use (91%), and useful for providing feedback (87%). Many detailed and useful suggestions were received and incorporated into the next round of revisions (University of Lethbridge, 2006, 2008). One suggestion that was not implemented was to write detailed descriptors for the three performance levels (*Not Meeting Expectations/Meeting Expectations/Exceeding Expectations*) for each of the 62 standards in the formative and summative instruments. It was soon determined that neither a performance assessment rubric nor

a separate set of descriptors on this scale was feasible. The decision was made to address reliability issues by relying on the rating scale, supplemented by training sessions attended by university mentors and teacher mentors in which our common understandings of each performance level were explored. With very few exceptions, this has proved to be an acceptable resolution.

Meanwhile, the revised Professional Semester One (PSI) instruments and procedures were used as the basis for developing and piloting the new assessment practices in the Second Professional Semester (PSII) Practicum during March-April 2006. Consultations with faculty specialists in curriculum, psychology, educational foundations and assessment, as well as with teacher and administrators representatives, helped defined the progression in standards from basic generalist teaching in PSI to an intermediate subject-specific focus in PSII (University of Lethbridge, 2007b, 2007c). Otherwise, the format and structure of the instruments, and the Guidelines for Use were retained (University of Lethbridge, 2007a). Once again, there was a training session for university mentors, and mentor teachers were asked to provide feedback on the new instruments and procedures by means of a paper and pencil survey. Feedback from PSII mentor teachers from a user survey of the new form was also very positive. For instance, teachers surveyed (N = 61) strongly agreed or agreed that the form was easy to use (93%), appropriate for the level (97%), and made it easier to evaluate students (95%). During the next academic year (2007-2008), the new assessment system was fully implemented in professional semesters one and two.

Improvement Process Outcomes

Alignment of assessment system components. Figure 1 shows how, in keeping with a backwards design approach (Wiggins & McTighe, 2005), the whole assessment system for field experiences is built around the revised criteria and standards for student teaching performance. The assessment tools and techniques are derived from, and consistent with, the desired standards, and are designed to gather good evidence of student achievement of the standards. Explicit communication about teaching performance standards by way of mentors and assessment instruments provides student teachers with clearer learning targets. Both formative and summative tools and procedures are designed to provide users with accurate information about learning in reference to the standards, whether for helping students diagnose and improve their performance, or for helping mentors make judgments about student teacher performance. Suggested tools and procedures for student self-reflection encourage student teachers to examine areas of strength, areas for improvement, and improvement goals in relation to standards for student teaching performance. Guided by the same standards, mentors can use assessment evidence and results to modify assessment tools and techniques, guide professional learning, and improve supervision practice.

Balanced assessment. In a balanced assessment system, formative assessment and summative assessment work together to produce an outcome that is greater than the sum of its parts (Stiggins et al., 2006, Chappuis & Stiggins, 2008). Purposefully planned summative and formative assessments combine to create a more accurate and complete picture of student learning. Some progress towards a more balanced system for assessment of student teaching performance has been achieved in the program. Feedback from teacher mentors, school

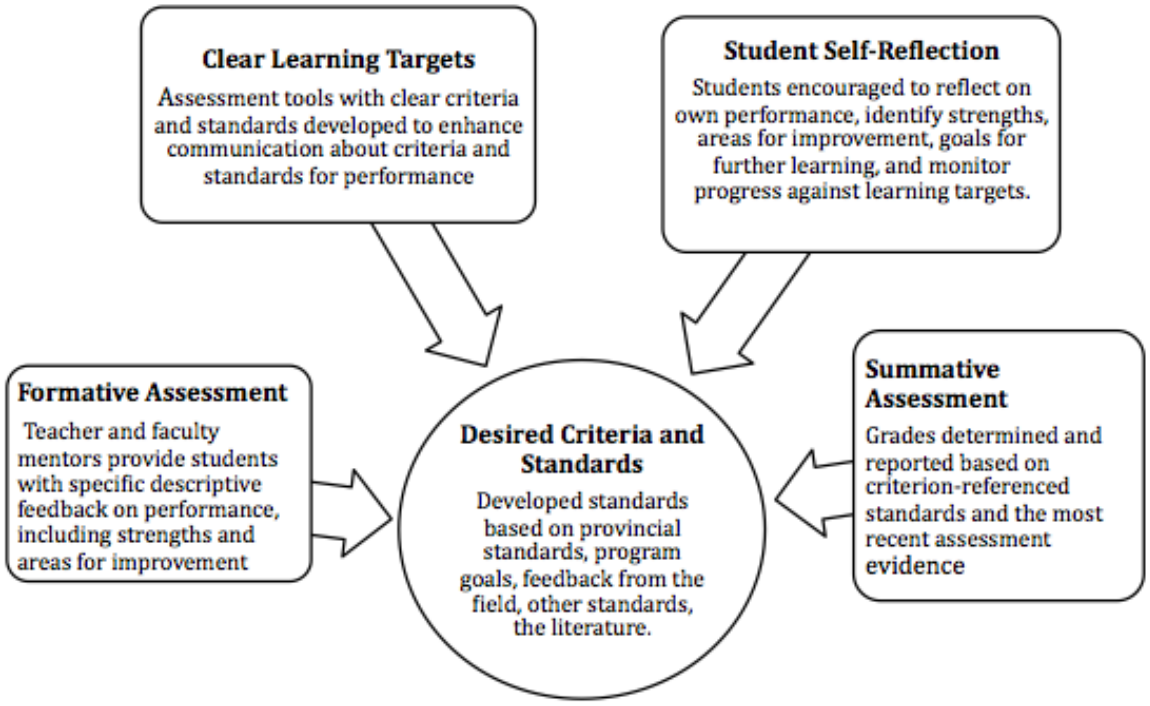

Figure 1. A Balanced Assessment System for Field Experiences

administrators, and university mentors suggests that improvements in the summative instruments and procedures have enhanced our ability to accurately measure and report teaching performance at the culmination of practicum experiences. Summative assessment has been balanced with better formative instruments and processes and enhanced opportunities to provide student teachers with timely useful feedback to help them improve their performance and meet the standards.

The formative assessment instruments were designed to help teacher mentors provide student teachers with specific written feedback relative to performance standards at regular intervals during the practicum. To enhance the quality and quantity of feedback, mentors are urged to concentrate on the three to five most relevant and significant strengths and areas for growth when they provide written feedback using the form, and to offer feedback in their observation notes that is closely linked to the standards described in the assessment forms. However, the process of balancing the formative and summative functions of assessment in the practicum has just begun. More remains to be done to articulate the summative and formative components of the system, to help students fully understand the intended standards and criteria, and to provide accurate and descriptive feedback.

Student involvement in assessment. A key to quality assessment at any level is the active involvement of students in the assessment process, such as teaching students to self-assess and to set goals (Stiggins et al., 2006). A self-reflection tool was developed to guide student teachers in the assessment of their own performance daily, encouraging them to take an active role in post-observation conferences with mentors. The self-reflection tool asks student to (a) describe the actual lesson, comparing what happened during the lesson to the lesson plan and

characterizing students' responses to the lesson; (b) identify the main strengths (e.g., 3-5 strengths) and weaknesses (e.g., 1-2 weaknesses) of the lesson plan and the lesson-as-taught, (c) identify improvements to the lesson plan and the instruction of the lesson, and/or alternative ways of teaching the lesson; and (d) reflect on their professional growth in relation to the lesson, their professional learning goals, and their vision of teaching as described in their professional growth plan or teaching portfolio.

Student teachers develop a professional growth plan and/or portfolio for the practicum in which they set goals for professional learning based on the teaching performance standards. The professional growth plan and portfolio engage students in self-reflection, and allow them to document their professional learning and share evidence of achievement at conferences with teacher mentor/university mentors. In addition, student teachers placed in the same school or neighboring schools are encouraged to visit each other's classrooms and offer specific constructive feedback, using the same formative forms used by teacher mentors. These initiatives to increase active student involvement in assessment in the practicum have had considerable success, but have been limited in some cases by a lack of consistency in application, and by student teachers' and teacher/university mentors' greater experience with and predisposition towards a more passive learning role.

Conclusion

Educators have come to understand that students learn best when teachers use a wide range of assessment methods to monitor learning, provide students with timely feedback, help students understand what is expected, and fully involve them in the assessment process (Black & Wiliam, 1998a, 1998b). As well, there is a pressing need for effective assessments focused on 21st century knowledge and skills (Partnership for 21st Century Skills, 2010). Applying these understandings to teacher preparation is a major challenge facing teacher education today. In this article, I set out to document how one institution approached this challenge, as they tried to align practicum assessment with research-based assessment practices and emerging professional standards, while meeting the practical needs of various stakeholders.

In terms of the 21st century approach, the program was able to incorporate several key 21st century program components recommended by the Partnership for 21st Century Skills (2010). A leadership team set direction for changes in the assessment of clinical experiences and engaged faculty in developing performance-based assessment built on professional standards. The assessment redesign process involved partnerships with K-12 schools, and local and provincial professional organizations and resulted in a more balanced assessment system for our already extensive and coherent field experiences. The extensive collaborations with partners in the educational community, involving consultation, research, development, and further consultation, were a key to developing assessment tools and techniques that met the varied expectations and needs of stakeholders.

However, regarding education for the 21st century, this is just the beginning of needed changes in field experience assessment. Program standards, coursework and assessments will need to be updated to reflect knowledge and skills that are presently absent or underrepresented, for instance, global awareness, entrepreneurial literacy, creativity/innovation, information/media literacy, social/cross-cultural skills, interdisciplinary project learning, and greater levels of collaboration during field experiences (Alberta Education, 2010; Partnership for 21st century skills, 2009).

In terms of the call for movement towards balanced assessment systems (Partnership for 21st century skills, 2009), the results suggest that effective research-based K-12 assessment practices may also be effective in teacher education. Based on the feedback from stakeholders such as teachers, administrators, students, and university mentors, substantial improvements were achieved in providing a broader base of formative assessments to complement summative assessments, in involving students in the assessment process, and in tightening the coupling between standards, instruments and procedures. The experiences of this faculty of education do suggest, however, that applying the notion of balanced assessment systems to teacher education is not a simple straightforward task.

Necessary conditions for an innovation of this kind include adequate time and resources committed to the project over a period of years, a consensus within the program about the need for change and the nature of the changes, and effective leadership to see the improvements through to completion. Furthermore, this case does not necessarily generalize to other programs, given that this is a relatively small-scale, well-funded program, with heavy faculty involvement in field experiences, and support for innovation from within the institution and various partners with an interest in teacher education. However, given the potential of effective research-based classroom assessment for improving student learning, and the need for teacher education programs to model these practices, these findings may have some significance in illustrating the possibilities for change, and what a balanced assessment system might look like in the field component of teacher education.

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What Matters is Mutual Investment and Evidence-Based Dialogue: Designing Meaningful Contexts for Teacher Learning

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Abstract

How might teachers be supported as professional learners, in activities and conversations that assist, rather than distract from, the complex work they do each day? In this article we describe a public school/university partnership model designed to support practice-oriented communication among educators– where professionals from various roles, institutional affiliations, and experience levels, communicate together about the details of their teaching. We outline the principles behind our approach and describe the specific practices we use to promote communication that engages teachers' pedagogical thinking. We share how teachers' own practice can become a centerpiece of professional development, and how authentic questions and evidence help educators develop insights into the relationship between their own assumptions, curriculum materials, and student understanding.

"I really want to get better at my teaching, but I'm not finding a way to do that."

"I can get teachers together, but sometimes it goes in so many directions. How do you keep the talk focused and productive?"

Both comments came to us in the same week. The first came from Paula, a second-year high school English teacher, a former graduate of our teaching program, whose comment revealed her struggles to find meaningful pathways for professional growth. The second came from Teri, a seasoned district administrator and science curriculum specialist, whose task it is to support teacher learning. For Teri structuring teacher learning, especially productive teacher talk, remains highly challenging.

Such comments reflect a clear pattern in our work with teachers and school districts. We hear frustration among teachers in locating meaningful opportunities for professional growth, as well as difficulty among school leaders in designing contexts for teacher learning. Indeed, we often wonder ourselves: How might teachers be supported as professional learners, in activities and conversations that assist, rather than distract from, the complex work they do each day?

These comments contrast with those we have heard in our work in a school-university partnership:

> "I appreciated the specific structure of today's meeting. We were able to dive deeper into a specific issue and student work. These studies are valuable because they allow us to focus on, learn from, and discuss common experiences. I look forward to all the perspectives we bring and how much I learn as a result."

What might account for such different perspectives on professional development? For five years, we have been developing a partnership model designed to support practice-oriented communication among educators– where professionals from various roles, institutional affiliations, and experience levels, communicate together about the details of their teaching. Our

model brings together different generations of educators—pre-service teachers, mentor teachers, administrators, and teacher educators— to investigate curriculum and pedagogy, express uncertainties, and verbalize the many tensions faced in teaching (Hamel & Ryken, 2010; Hamel & Ryken, 2006). We are especially interested in how rich teacher dialogue might influence teacher growth, in a time when "dominant discourses position teachers as passive recipients of others' expert knowledge, rather than as knowers in [their] own right" (Luna, et al, 2004, p.69). We report here on the principles behind our approach and the specific practices we use to promote communication that engages teachers' pedagogical thinking in a multi-generational context.

Models of Partnership

We position our partnership work between two models of school-university partnership: informal partnerships and professional development schools. Table 1 compares these models, their purposes, structure, and central practices.

Table 1

Three Models of School/University Partnerships

Model	Informal Partnership (Typical Internship)	Intentional Partnership	Professional Development School
Focus	Negotiating two worlds	Enhancing intersections	Restructuring systems
Purpose	Placement of pre-service teachers	Dialogue & program re-thinking	School and teacher education congruence and reform
Structure	Internship placements	Purposeful Set of Meetings	Sites of exemplary practice
	Student teachers and supervisors as conduits between school and university	Systematic crossing of multiple voices	Specialized bridging roles and governance structure
			Redistribution of roles and responsibilities
Central Practice(s)	Maintenance of existing relationships	Discussion of student learning artifacts	Collaborative inquiry/research

From our own experience with local schools, we identify an "informal partnership" as a school site where we have created successful internships (observation and student teaching experiences) with mentor teachers and principals for several years, often mediated through one-on-one relationships between specific individuals. Informal partnerships exist where principals consistently agree to work with our students, where a handful of mentors know our program well, and where our pre-service students consistently report positive internship experiences. At the other end of the spectrum, a professional development school (PDS) is a programmatic, capacity-building relationship that emphasizes system-building across educational institutions, rather than a set of informal connections between institutions. PDS's strive for congruence between university and school settings and involve developing ongoing governance structures and collaborations to support "common vision" and "joint work" (NCATE, 2001).

By contrast, the intentional partnership model focuses specifically on cultivating dialogue and hearing different points of view. The central aim of our intentional partnership is to cultivate substantive communication events – productive dialogue between individuals who are positioned very differently in relation to pre-service teacher growth. The primary goal, in the words of Cochran-Smith (2000), is to "help make visible and accessible everyday events and practices and the ways they are differently understood by different stakeholders in the educational process" (p.167). We are particularly interested in how the intentional crossing of voices makes visible various forces, interests, and pressures that shape conceptions of teaching and learning across institutions.

Designing Communication Events

Powerful teacher learning must be grounded in rich communication events—conversations that include multiple perspectives and make teaching practice public (Lieberman & Pointer Mace, 2010). Effective teachers grow through participation in professional learning communities which inspire both trust and a culture of inquiry about student learning (Bloom & Vitcov, 2010; Dufour & Marzano, 2009). Yet, Goodlad (1988) has argued that among the many elements necessary for a healthy teaching community, shared inquiry is the most difficult element to achieve, "the most deceptively subtle in [its] mature functioning and the least likely to be diligently cultivated" (p. 20). In our experience, even when educators are provided time to talk, or are ready and willing to dialogue about teaching, they may struggle to enact a process that facilitates focused, generative communication about the details of classroom practice.

Our approach emphasizes two elements: context and protocol. Context matters and is shaped by *who* comes together to talk and *what* teachers talk about.

Who comes together? Mutual investment is key. In our work teachers and teacher educators find mutual investment in the growth and professional development of pre-service teachers. We have found that groupings that include mentor teachers and teacher candidates in the same building, university supervisors, teacher educators, and building administrators create multi-generational and motivated discussions on classroom practice. However many other groupings are possible; groups having mutual investment could draw from grade level teams, paraprofessionals, school specialists, district curriculum specialists, and even parents.

What is talked about? Teachers highly value discussions that are relevant to their everyday teaching practices. As Deborah Ball (1997) suggests, one of the best things teachers can do to develop their thinking about students is to "look together" at student work. Classroom-based evidence, such as student work or curriculum materials are natural problem-solving texts because they are contextualized within a particular classroom, and they often make student thinking central to teachers' talk and professional growth. In addition, discussing student work allows the voices and thinking of school children to be part of the conversation. For example, in November 2009, looking at two fifth grade student lab book pages and a sample experimental set up, the group discussed a specific question: How are these two students understanding the saturation problem? In March 2011, examining Read Well fluency assessments in a first grade classroom, the group discussed a question posed by a student teacher: What changes are possible to make reading more meaningful and engaging for students?

Protocol matters because strong professional development is formed through participatory routines that educators find efficient, thought-provoking, and connected to their work. We have developed three meeting practices to foster collaborative dialogue and reflection:

1) a multi-vocal planning process, 2) discussion of an authentic classroom-based question in relation to evidence, and 3) reflection on the meeting discussion.

Planning for a Meeting

We have developed a "multi-vocal" planning process to ensure the interaction of multiple perspectives at the very center of the meeting design. Specifically, a few days before each partnership meeting, a pre-service teacher, his or her mentor teacher, and a university teacher educator meet for an hour to discuss the dilemmas the pre-service teacher is experiencing, to consider classroom-based evidence, and to generate discussion questions. By talking though the dilemma with two other educators, the pre-service teacher clarifies his/her thinking, rehearses presenting a dilemma, and considers multiple perspectives in framing the dilemma. Mentor teachers can typically provide background about district curriculum materials and pose questions about how to describe the learning context to other educators. University teacher educators examine the classroom-based evidence and pose questions about the relationship between the dilemma and the evidence. Engaging different generational and institutional perspectives is important, because it helps in framing questions that can engage all participants and deepen the potential for conversation.

For example, in preparing for a recent meeting, the planning discussion enabled a pre-service teacher to revise her choices for student evidence. To begin the planning meeting the pre-service teacher was invited to describe the learning experience, her dilemma, and samples of student work generated during the lesson. She described a science lesson in which fifth grade students dissolved salt in water to reach the saturation point. She shared four students' written explanations about how they would know if a solution was saturated. She wondered if and how her students understood saturation. She asked, "How can I honor both the state science standards and my students' thinking?" Next the mentor teacher and teacher educator responded by posing questions to understand why the pre-service teacher felt the issue was important and to learn more about what the student teacher saw as the strengths and weaknesses in the student explanations. The mentor teacher, drawing on her knowledge of her students, noted that one of the students exceeds standards in all subject areas and had written the longest and most detailed student explanation. The teacher educator asked which student explanations were most representative of the work written by the class and shared aloud the questions the student explanations raised for her. The mentor finally suggested that it would be helpful to set out the experimental set-up during the partnership meeting so that meeting participants could visualize the saturation experiment.

The final part of the meeting turned to mutual dialogue about the student evidence. Discussing the presented evidence together, the elementary teacher, pre-service teacher and university teacher educator discovered many nuances in student responses, and in the end the pre-service teacher decided to share two different problematic examples—rather than one ideal student response and one very limited response. Comparing representative examples allowed the planning team, and later the participants in the meeting, to consider different ways of student thinking—not just correct and incorrect responses—and also to re-examine why the assignment prompt itself might have been confusing for students. These choices and discussion at the planning stage supported active discussion and in-depth examination in the subsequent meeting.

Discussion of Classroom-Based Questions and Evidence

We have found that the quality of the meetings matters more than the number of meetings. Given the many demands on teachers' time we meet between two and six times per year, and we limit the meeting length to between 60 and 90 minutes. Meetings typically involve 15-20 individuals with a roughly equal balance of pre-service teachers, mentor teachers, and university faculty. Our meetings follow a five part agenda: (1) welcome and introductions, (2) presentation of a teaching dilemma and evidence, (3) small group discussion, (4) whole group discussion, and (5) feedback and reflection. Meeting discussions are focused on a central question posed by an educator in relation to evidence of student learning, and meetings typically take place in the home classroom of the presenting teacher. As indicated in the planning stage, presenting teachers are encouraged to share a "provocative pairing" of evidence—for example, two samples of student work from the same learning task that differ in a way that raises questions. Significantly, focused student evidence creates a "third point" (Lipton & Wellman, 2003, pp. 30-31) in teacher discussions – that is, a reference point which mediates substantive communication while reducing the threat of judgment around the specific events or the teacher in a classroom. In other words, starting with student evidence allows participants to come to the dialogue from a place of curiosity rather than vulnerability.

To illustrate a typical meeting, we describe the question and evidence shared by a pre-service teacher, who was in her twelfth week of student teaching at a partnership elementary school. She began the dialogue by describing the end-of-unit assessment task in a third grade math unit, entitled "Fair Shares," in the district-adopted curriculum (Investigations in Number, Data, and Space). Figure 1 shows the provocative pairing of evidence presented by the pre-service teacher.

The student teacher presented her dilemma by explaining that during this math unit her students had spent many weeks examining relationships between halves, fourths, eighths, and sixteenths, as well as thirds and sixths. However, her class had not studied fifths, and during the end-of-unit assessment a number of students said in frustration, "but there is no such thing as fifths!" She said she was puzzled by the written responses presented. Before the small group discussions began, she said that the only question she wanted to pose was: "What were they thinking?"

Small groups with three to five members (including at least one student teacher, one mentor teacher, and one university teacher educator) discussed the question and evidence for fifteen minutes before the whole group came back together to share insights and questions. The large group discussion began with participants identifying patterns in the student responses, for example, both students used visual diagrams and written statements to explain their thinking and both students began the partitioning process with fraction values they had previously studied (thirds and fourths). These initial comments led to a further questioning about the curriculum materials and student thinking: What are the pros and cons of assessment tasks that involve fractional units that students have not yet studied? Is partitioning easier when fraction values result in an equal number of parts? At the end of the discussion the student teacher commented that the conversation had helped her re-frame her dilemma. She noted that she had been focused on the fact that the students had not used fifths when problem solving; she had focused on what her students had not done, rather than on the understandings they demonstrated. As she said, "I was so caught up by the fact that they didn't use fifths I missed how much mathematical thinking they were using." Although this is a brief description, the example illustrates how teachers' own

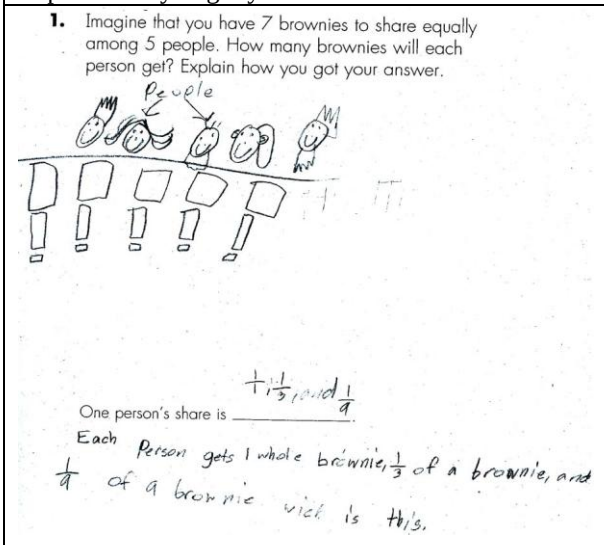
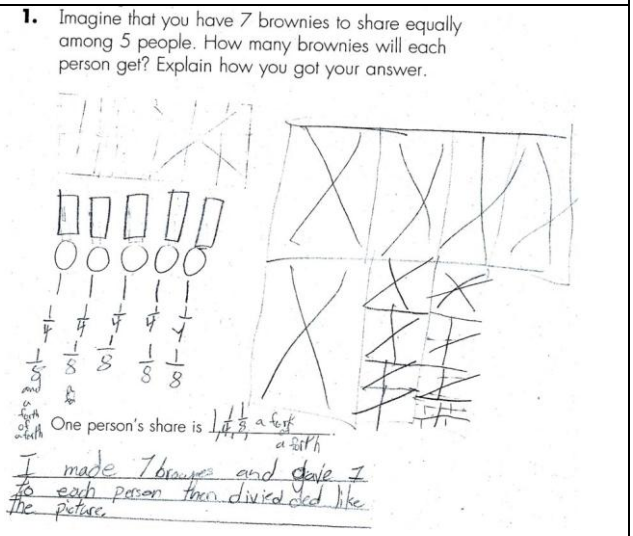
Imagine that you have 7 brownies to share equally among 5 people. How many brownies will each person get? Explain how you got your answer.	
	
One person's share is 1/1, 1/3, and 1/9 Each person gets 1 whole brownie, 1/3 of a brownie, and 1/9 of a brownie wich is this.	One person's share is 1, ¼, 1/8, a forth of a forth I made 7 brownes and gave 1 to each person then diviedded like the picture.

Figure 1. Evidence provided by pre-service teacher

practice can become a centerpiece of professional development (Lieberman & Pointer Mace 2010), and how authentic questions and evidence help educators develop insights into the relationship between their own assumptions, curriculum materials, and student understanding.

Reflection on Meeting Discussion

At the end of each meeting participants write a reflection on index cards by responding to the writing prompt, "What do you take away from today's partnership meeting?" Writing reflections supports participants to link experience and thinking by describing their understandings, sharing reactions, and connecting their learning to past and/or future experiences (Moon, 1999). These responses are typed up, organized into a table by stakeholder group (pre-service teacher, mentor teacher, university teacher educator), and circulated to all participants to make patterns in perspective visible. This reflection process allows each participant to consider the implications for her or his teaching – as well as one's own sense of self as a learner in community.

As seen in the example reflections, the educators involved emphasize that teaching involves considering numerous dilemmas, that the meeting context supports an open exploration of questions, and most importantly that teacher learning occurs in professional dialogue with others.

Table 2

Participant Reflections

Reflection by Role Perspective	Common Themes
Pre-Service Teacher Reflections	
For me, being in a partnership with people who I usually only get to relate to in a professor-student or experienced teacher-novice way, this time in more of a peer way, has been very positive. I love getting to hear the many different perspectives on the same issues.	--collegial identity --value of different perspectives
It was nice to see in the discussion that people who have been doing this forever still don't have all the answers. Even though we are teachers we will always be learners. It was also nice to be in a place with superiors in more of a peer way.	--sense of self as learner
Mentor Teacher Reflections	
It feels good to have time to discuss meaningfully the deep issues about math materials. MAT students need to see that we too struggle to make sense out of what and how we're teaching kids. It was important to hear that you are <u>always</u> growing and learning no matter how long you've been teaching.	--concern for depth in discussion --desire to discuss common experiences
I appreciated the specific structure of today's meeting. We were able to dive deeper into a specific issue and student work. These studies are valuable because they allow us to focus on, learn from, and discuss common experiences. I look forward to all the perspectives we bring and how much I learn as a result.	--value of different perspectives --sense of self as learner
University Teacher Educator Reflections	
As educators we can never know it all. I've appreciated the opportunity to suspend the "need to know" for the opportunity to consider and explore perspectives from the various roles.	-value of different perspectives --sense of self as learner
If we can't have it all, what is it that we really want from math instruction? Experienced teachers have deep curriculum knowledge and scripts to pull from as they consider curriculum—noticing error patterns helped us raise questions about the curriculum and student thinking. This meeting reinforced for me that teaching is an active, ongoing, intellectual process.	

Conclusion

We have heard again and again that conversations like these are not usual in the life of an educator and that teachers deeply desire supportive contexts to explore the day-to-day complexities of their own teaching. Systematically supporting multi-vocal teacher communication fosters shared inquiry and validates that many perspectives are needed to re-think teaching practices. Although developed within a specific partnership, we have found that the protocols we have created for supporting teacher communication and learning are adaptable to a number of contexts – wherever teachers are looking to study classroom interactions, teaching practice, and student learning. We have used these meeting protocols with good effect in a variety of settings with a wide range of participants beyond our partnership, including our

information/student recruitment session, mentor teacher orientations, and even our reaccreditation team meetings with state officials. What matters is mutual investment and evidence-based dialogue. Our belief is that effective teaching develops when teachers collaborate with others, make their teaching dilemmas visible for professional discussion, and pose questions from their practice in relation to selective, detailed, classroom-based evidence.

Our work is also a powerful reminder of the importance of professional identity development within a learning community. Learning to teach is centrally about identity development (Alsup, 2006; Costello, 2005), not merely about instructional tools, knowledge, skill sets, behaviors, or even dispositions. Our work aims to address how teachers see themselves as professionals – i.e. whether or not they have a "voice" in their professional community, whether they are authorized to experiment and question, whether they feel they have to choose sides between theory and practice. From this perspective, our partnership meetings aim to provide an important space for teachers (pre-service and otherwise) to try on identity positions and to rehearse such roles by talking about teaching and learning in the company of colleagues with differing kinds and levels of experience. Rich communication in this context allows teachers to take on or appropriate various forms of talk and action that may shape how they envision their role and voice in schools.

McLaughlin and Talbert (2006) further argue that school-based learning communities (e.g., grade level teams, the school faculty) are ideally suited to address questions that lie between macro level policy demands and the micro interactions of particular classrooms. In strong professional learning communities, teachers constantly consider and negotiate mandates in relation to what they know about their students and school community. Our intentional partnership model aims to build such habits of strong professional community by focusing on quality meeting interaction. We aim to expand conversations around curricular decision making, bringing together crucial professional voices (experienced teachers, beginning teachers, teacher educators, administrators) around questions of practice. During partnership meetings, this often takes the form of teachers asking critical questions about the adopted curriculum, identifying and reframing assumptions, or wondering about the broader purpose of teaching a particular subject.

The teachers we know and learn with strongly desire meaningful discussions about their teaching. They acknowledge that they have plenty to learn as well as knowledge and insight to offer. Yet, productive teacher conversations remain rare, because, as in actual classrooms, multiple variables are involved. Teachers may not relate to a given issue, may not fully trust the context, questions asked can be too vague, information offered too overwhelming. Given these realities, we believe too little time is spent planning for and supporting the nuances of productive teacher talk – including a question grounded in practice, mutual investment, use of selected evidence, and two-way dialogue. We offer our partnership model as one example, and as a way to emphasize the importance of intentionally designed communication in support of teacher learning about practice.

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It Hurt Big Time: Understanding the Impact of Rural Adolescents' Experiences with Cyberbullying

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Abstract

In the 21st century, the growing use of online technologies has challenged parents and educators to understand the concerns and issues faced by adolescents with cyberbullying both in and outside the school context. The purpose of this study was to examine rural adolescents' experiences with cyberbullying in Canada. The participants included 1752 adolescents who attended 16 schools in rural Alberta. The 73-item online questionnaire included the following question: If you have ever known someone to be bullied, been a target of bullying, or ever bullied someone using online communication please describe the situation(s) and what happened as a result. Youth described online pretending behaviors, harassment, threat-making and violent activity. This study highlights the importance of teacher education and professional development programmes that are focused on helping adolescents navigate the complexities of their online communication.

The phenomenon of "cyberbullying" is prevalent and widespread, with the potential to be even more damaging than traditional forms of bullying (Anderson & Sturm, 2007; Chisholm, 2006; Wilson, 2005). Cyberbullying leads to a hostile school environment and highlights the need for teacher education programmes to help the next generation of teachers understand the impact of this type of behavior (Shariff, 2008). The purpose of this study was to generate and then examine written responses from adolescents about their experiences with cyberbullying. A child is considered to have been cyber bullied when she or he has been intentionally exposed to negative actions by another child or group of children involving the use of information and communication technology (Olweus, 1995; Ybarra & Mitchell, 2004). Cyberbullying occurs in a number of online environments including: chat rooms, online bulletin boards, e-mail, instant messaging, web sites, cell phones, social networking sites, newsfeeds, and online multiplayer video games (Mishna, McLuckie & Saini, 2009). What makes a cyberbully more harmful than the traditional bully is his or her ability to communicate a message apparently anonymously, to contact the target at any time and to reach a much larger audience than the traditional bully is able to do (Wilson, 2005). Further complicating the issue of cyberbullying is that the majority of online communication, and therefore online bullying, happens outside of school often leaving school administration feeling ineffective in combating the issue. This is partly because public schools place heavy restrictions on the use of the Internet contributing to an even greater gap between students' online lives and the classrooms where they are expected to learn (Considine, Horton, & Moorman, 2009). According to Canadian researcher, Shaheen Shjariff (2008), it is essential for teachers and administrators to know their responsibilities to intervene when students cyberbully.

Cyberbullying refers to "the willful use of the Internet as a technological medium through which harm or discomfort is intentionally and repeatedly inflicted through indirect aggression

that targets a specific person or group of persons" (Williams & Guerra, 2007, p. S15). It is important to note that the presence of a real or perceived power imbalance is intensified in cyberspace, where bullies can hide behind a screen name, adding the advantage of anonymity. Ybarra & Mitchell (2004) report that 84% of aggressors know their targets, yet only 31% of targets report knowing their aggressors. They assert that this is one feature of Internet communication through which the bully may establish an important level of dominance. It also provides a way for youth to bully others in a relatively consequence-free environment (Bocij & MacFarlane, 2003). The uncertainty about the bully's identity that accompanies online harassment increases the anxiety and fear felt by the target, which may result in increased feelings of distrust towards the innocent, even their close friends (Belsey, 2004). Thus, the cycle of social exclusion is effectively started with an anonymous online aggressor.

Fear of social exclusion empowers another advantage for bullies, who use digital forms of communication, to reach their target almost twenty-four hours a day (Beran & Li, 2007). In traditional forms of bullying, the target is often exposed to the bully's negative actions for the duration of the school day when he or she can then seek refuge in the safety of his or her own home. However, 44% of preteens and 70% of teens who have been cyberbullied receive hurtful or threatening messages at home, leaving no safe haven from online harassment (Fight Crime: Invest in Kids, 2006). Teens are reluctant or even resistant to turning off the computer or cell phone in order to escape cyberbullies because having to refrain from the use of IM, e-mail and text messaging due to fear of being bullied would further increase feelings of alienation from their peers (Anderson & Sturm, 2007).

Finally, the ability of a cyberbully to spread his or her message to an incredibly large audience, transcending geographical, social and temporal boundaries, adds strength to his or her attack (Chisholm, 2006). A message posted to a discussion board, social networking site, or to a chat room can remain for years and be seen by individuals anywhere an Internet connection exists. This potential for an enlarged audience and increased longevity can work to intensify the effects of cyberbullying, especially when it is coupled with face-to-face bullying as studies indicate.

Researchers have suggested that there are two different dimensions to cyberbullying. The first dimension is when the Internet and other forms of digital communication are used as the primary tools of harassment. The second dimension is when the Internet and other forms of digital communication are used to facilitate more traditional face-to-face forms of bullying (Gillespie, 2006; Olweus, 1993). In this second dimension, harassment goes far beyond the exchange of vulgar and derogatory terms to include several forms of harassment that require the assailant to know personal information regarding the target. In one study, almost half of all participants who engaged in cyberbullying were previous targets of offline bullying (Ybarra & Mitchell, 2004 a,b).

In 2001, one in seventeen youth reported being threatened or harassed while using the Internet (Paulson, 2003; Sampson, 2001). Five years later, those numbers had increased showing that between one-third and one-half of all students had experienced cyberbullying, with varying levels of frequency (Hindjua & Patchin, 2005a; Jackson, 2006; Kowalski & Limber, 2005; Lenhart, 2009). In addition to this, over 50% of youth reported they knew others who had been cyberbullied (Li, 2006). In a study of rural teens in Canada 17% of participants admitted to bullying online (Bright, Dyck & Adams, 2008).

In order to prepare students for life in the 21st century, we must first acknowledge and understand their online experiences with cyberbullying and then offer them multiple

opportunities to cultivate skills and strategies for handling difficult and complex issues. "Protection, however well-intentioned, actually fails to prepare young people by not providing the adult supervision and guidance that many of them would benefit from during their online encounters" (Considine, Horton, & Moorman, p. 473, 2009). This study seeks to understand not only what adolescents do with technology but also what technology does to today's youth.

Impact of Cyberbullying

Cyberbullying is a trend that threatens the mental health and overall well-being of today's youth, with effects ranging from moderate to severe emotional disturbances. The effects of cyberbullying are manifested in forms such as reduced self-esteem, depression, the development of eating disorders, poor school performance, to long-term emotional and relational disturbances, suicide and an increased propensity for violence (Gillespie, 2007; Kuperschmidt & Patterson, 1991). The results of these effects are often seen most clearly in the school environment, and can be measured in terms of academic difficulties, withdrawal, school phobia and school drop-out rates (Beran & Li, 2007; Jackson, 2006; Shariff, 2008; Willard, 2006). These challenges to school success make cyberbullying an important topic for educators to address and to understand.

Research Methodology

The Research Question

The purpose of the study was to generate and examine responses by rural adolescents regarding their experiences with cyberbullying. The written data was part of a larger study on rural adolescents' perceptions and habits with online technologies (Bright, Dyck, and Adams, 2008). The full survey contained seventy-three items, but this study focuses on questions fifty-five through fifty-seven of that questionnaire, which provides qualitative data on cyberbullying from the students' perspectives. Students first responded to three questions asking whether or not they had ever known someone to be bullied, been the target of bullying or bullied someone. A follow-up item to each of the above requested students to indicate the type of technology used in each of these encounters. Finally, students were given the opportunity to write about their experiences with cyberbullying. The question asked of this group of adolescents was: If you have ever known someone to be bullied, been a target of bullying, or ever bullied someone using online communication please describe the situation(s) and what happened as a result. In examining the data, researchers asked the question: "What are the experiences of cyberbullying among rural adolescents?"

Participants

The participants were aged primarily from 12 to 15 years and were from five different school jurisdictions (and 16 different schools) in rural Alberta. From the sample of 1752 students, 676 students provided qualitative responses to question fifty-seven.

Instrument

The questionnaire for rural adolescents was developed and piloted by the researchers and reflects the many themes, questions, and categories identified in *Young Canadians in a Wired World* (Media Awareness Network, 2005). This earlier questionnaire on the topic of youth and Internet was administered by the Media Awareness Network, a non-profit Canadian organization dedicated to the development of media and digital literacy programs. The purpose of developing our questionnaire was to allow one or more school sites interested in online technology use among their students to document and gain insight into their social communication patterns and perceptions.

Procedures

As with all research involving children, human subjects ethics approval was secured and conversations ensued with school superintendents, school principals, teachers, parents and with the students themselves. All students who were present on survey day were asked to complete the questionnaire which was administered online by school Communication Technology personnel or classroom teachers. Students were introduced to the questionnaire through a scripted protocol developed by the researchers. They then voluntarily responded to the seventy-three questions in the larger survey, during a time period ranging from thirty to sixty minutes as needed. The identities of the students were completely protected in both the data gathering and data analysis portions of the research. The online questionnaire assigned a number to each student, along with gender, age and grade level, but did not record student names. Individual school districts requested that their data be available to examine on its own and in relation to the data as a whole. This information has been shared with representatives from each of the school jurisdictions, but for the purposes of wider research dissemination, data will be shared and discussed here in aggregate form.

For this study, qualitative data analysis procedures were employed. A grounded theory approach to data analysis was utilized throughout the research, an inductive process suitable to this study where very little pre-existing research is available (Glaser & Strauss, 1965). Analytic categories were assigned and compared using the constant comparative method (Bogdan & Biklin, 2003). Second and third readings of the surveys by the researchers, one graduate student and one undergraduate student familiar with the research tested the workability of the categories and similarities and differences were noted.

Findings and Discussion

Adolescents' experiences of cyberbullying refer to the following themes: harassment, threats and violence, pretending behaviours, the relationship between online and offline communities, and the cyberbullying friend. Their experiences ranged from less concerning situations to emotionally scarring ones. For instance, one student explained that cyberbullying is, "[a] lot of stupid stuff that resulted in a lot of other stupid stuff." Other students in the study described cyberbullying as a "joke", "funny", or "playful banner [*sic*]". In contrast, another student described a personal experience with cyberbullying, in which "they swear at you and tell you what you act like even though it is not true and it does hurt big time." Students also wrote about the consequences of their cyberbullying experiences and these often referred to the presence of teachers, parents and police officers with varying results, suggesting the need for greater understanding of the impact of cyberbullying on the lives and learning of adolescents.

Harassment

Name calling or verbal abuse was the most commonly reported form of cyberbullying by students in this study. Name calling ranged from "rude" to "trash talk" to "inappropriate" to "mean" to "swaring [*sic*]" to "sexual" in nature. One student identified a reason behind name calling on the gaming site which he frequents: "kids on online game sites will right [*sic*] stuff to make them feel bad." Name calling was also frequently related to appearance ("called fat"), ability ("make fun of this person for being to [*sic*] smart"), and popularity ("wasn't the cool kid in school"). The frequently cited adage that "names can never hurt me" does not ring true with most students in this study.

One aspect of cyberbullying behaviours reported by students involve groups of students who work together to harass a target. One adolescent explained that "her friend got a bunch of girls to start adding her to msn and call her mean names. Then they told her to meet them outside the school so they could beat her up." In this example, the bullying took place both in the virtual and the real world by a group of girls who were reportedly friends of the target. This type of "gang" bullying can have a particularly damaging psychological effect, since it increases the power differential between the bully and target. The more people the bully has on his or her side, the more perceived power that individual may have. Whether these people are known to the target is inconsequential, since the online relationship is often just as real to adolescents as the face-to-face relationship (Wolak, Mitchell & Finkelhor, 2002).

Romantic relationships can contribute to cyberbullying through unwanted sexual invitations or contact online, constituting harassment. Verbal harassment ranged from sexualized insults to unwanted sexual comments to threats of rape. The other frequently represented type of online sexual harassment related to requests for the target to have sex, to do cyber sex, or to do bad / inappropriate things. These requests came through the varied media of online games, chat rooms, msn and others formats. A student described one girl's experience while playing a game online as follows: "one of the characters came up to her because the people on the other end can talk for there [*sic*] characters. He asked Fiona to have sex with him." Some of the incidents described in this study proceeded from romantic relationships, whether online or offline, however, others were unsolicited and bordered on cyberstalking.

Threats and Violence

Threats and violence comprised a significant theme in participants' responses to the question about their experience with cyberbullying, and they can be classified into the following categories: death threats, physical assault, sexual assault, and threats of harm. Students described instances of threats through technologies such as email, blogs, IM, and popular gaming sites – Runescape, and Habbo Hotel were mentioned.

Death threats comprised a large number of the threats described in the comments on cyberbullying. These took the form of general death threats ("threatened to be killed"), of specific method death threats ("His friend then said I should be changed [*sic*] to a walll [*sic*] and cut open with a rusty knife"), of collective death threats ("saying they were going to kill my friend and all of her friends"), and of suicide encouragement ("he told her that she should kill herself"). Such threats illuminate the types of emotional and psychological stress that students may experience as a result of cyberbullying obviously affecting their ability to perform well at school where the presence of the cyberbully is very real.

Threats of physical assault were the most prevalent form of threats in the responses given by students. These ranged from general ("threatening to hurt the person") to specific in terms of injury and place or time ("say they are going to find a certain kid and break their legs" and "threat, like I will beat you up at school tomorrow") to sexual in nature ("said that they were going to come and rape him/her"). In addition to this, some of the written responses referred to physical assault as a consequence if some action was not taken on the part of the target ("threatening one of my friends to do stuff or they would hurt them" and "threatened that if they didn't do something that the person wanted them to do that they would track them down and beat them up or kill them"). In addition to *threats* of physical assault, students documented many cases of actual assault as a result of cyberbullying, which will be presented in the discussion on the relationship between online and offline communities. These types of comments illuminate the blurred relationship between cyberbullying and the "real world."

Students' descriptions of general threats of harm demonstrate the potential of psychological damage accomplished through communication technologies. One target explained, "i said something and she took it the wrong way and got mad at me and got her friends to say im [*sic*] looking forward to seeing u [*sic*] on mondy [*sic*]." While it is not clear what her friends planned to do to the target, the implication is one of unspoken aggression by a peer group. This method of cutting the target off from real or virtual social support is one way that cyberbullies damage the target's self-esteem (Anderson & Sturm, 2007). Another student described a cyberbullying encounter in which a bully will "threat [*sic*] the person and tell them they know where they live and they would shout out there [*sic*] name." While this threat is not clearly related to causing physical harm, this message suggests an invasion of the presumed "safe haven" of home by the cyberbully.

There were three students who reported cyberbullying incidents in the international context. The first of these incidents was brushed off as insignificant because "they livesd [*sic*] in Sweden." However, one other report involved a target from Brazil who issued a death threat to the cyberbully's friend. Another target described his or her reaction to internet bullying: "i just yelled at them becsaue [*sic*] i didnt [*sic*] liek [*sic*] something they said and if i knew them in person id [*sic*] kick their ass." Distance between the bully and the target may actually intensify the amount of aggression in a cyberbullying encounter.

Pretending

In order to establish the power differential described as essential to the definition of bullying (Besag, 1989; Rigby, 1993), some cyberbullies resort to pretending. In a national study of Canadian teens, a majority of participants reported that they had pretended to be someone else online (*Young Canadians in a Wired World*, 2005). In this study, cyberbullies were reported to assume alternate genders ("pretending to be this guy and they started sending her mean stuff") and personalities ("being a hotshot online and as a result got cocky then got beat up"). These types of pretending and identity alteration allow the cyberbully an advantage over the target. As 14% of teens report close friendships or romances in online environments, it is not surprising that this has become an avenue for cyberbullying (Wolak, Mitchell & Finkelhor, 2002). Two individuals reported someone who had pretended online to be a guy who emailed or sent "mean stuff" to the target. In another situation, an individual "pretended to be a girl at my school and they wrote love letters to a boy at my school." This latter situation could be considered bullying to both the direct and indirect targets, as both the female and the male involved likely experienced discomfort, embarrassment or shame from the actions of the cyberbully.

The Relationship Between Online and Offline Communities

Online technologies allow an overlap between the digital and the natural world. In fact, the internet is often described as a "place" itself (Laegran, 2002). A number of participants identified conflicts that began at school and transferred to online environments, such as MSN or email. The ability of a cyberbully to contact the target at any time increases the perceived power held by that individual. For example, one teenager described an incident in which "hey [*sic*] were in a fight at school and it got bigger on msn." The other side of the situation was also frequently reported, as a bystander described "calling them mean names and then they got into a fight in real life." This type of incident progression was quite common. Another example directly relates the school environment to cyberbullying: "they were bullied about something that happened at school, [*sic*] for weeks after they were bullied about it." One individual was "flirting with a girl jokingly (they were friends) and the boyfriend beat him up," showing how online interactions are not as private as students often assume (see Ipsos-Reid, 2006).

Perhaps one of the most revealing statements in terms of this environment overlap is found in the following: "My friend Kayla was onMSN [*sic*] and she just broke up with her boyfriend, and he said mean things to her, and she tried to kill herself, but we got it sorted out on the weekend." This incident of cyberbullying began with a romantic relationship that was most likely conducted in the real world though online romantic relationships are not uncommon, even for adolescents (Wolak, Mitchell & Finkelhor, 2002) but included online exchanges. Verbal abuse on MSN by her ex-boyfriend, following a break-up, resulted in "Kayla's" attempted suicide. The most telling portion of this account is the final phrase, "we got it sorted out on the weekend," which suggests that there were no lasting effects from this encounter. In addition, it emphasizes the reality that many students deal with cyberbullying outside school hours, and may never mention their experiences to educators or other adults.

One student describes this type of encounter in which the cyberbully would "threaten the person and tell them they know where they live and they would shout out there [*sic*] name." Another participant identified a threat to invade her privacy at home, when the cyberbully "said she was going to kill her in her sleep." While bullies can make students feel unsafe at home, they

can also make targets feel unsafe at school ("scared because the bully might come to are [*sic*] school") or in public ("threatened to kill me with a knife or whatever if they ever saw me in public again"). Cyberbullies can also tell the target's secrets ("threatened to tell her secret if she did not do what she said"), furthering the privacy invasion. Personal details are sometimes used as leverage by a cyberbully, such as making comments about the target's "dead dad". These tactics prevent the target from living a full and productive life, due to a fear of realized threats.

The Cyberbullying Friend

Responses to the questionnaire indicated that the relationships between bully and target were often those of friends, best friends, or boyfriend/girlfriend. These close relationships can degenerate into betrayed trust, as a result of acquaintances "breaking in" to their online accounts for things such as instant messaging and email. For example, one student shared the following experience: "they broke into my MSN and trashed me infront [*sic*] of my friends." Considering the high percentage of students who report sharing information such as passwords, this type of behaviour is not surprising (Bright, Dyck & Adams, 2008). However, the frequency of this type of situation indicates that cyberbullying often plays out within groups of friends. While this may be nothing more than the "high school drama" described by one respondent, continued betrayals of trust will have a significant impact.

Following an incident of cyberbullying, students reported both negative and positive changes in relationships. There were many responses that indicated cessation of communication between individuals and increased or new hostility between those involved ("The target and the bully were really good friends until oneday [*sic*] when the target recieved [*sic*] a hurful [*sic*] message. Afterwards, the two never talked to each other again (havent [*sic*] talked yet anyway)"). In an interesting phenomenon, though, many students reported being friends, good friends, and even best friends with someone who had previously bullied them online ("this boy on our bus used to bully my friend but not any more because i stood up for her and now the boy on our bus and i are best friends" and "we were in a fight..\r\nnow were [*sic*] BEST friends"). Of course, the middle path also exists, involving periods of online harassment, separation, and friendship ("seperate [*sic*] from eachother [*sic*] for a while which turns out to be a very long time then we get back together and then we apoligize to eachother [*sic*] then we are all friends again." and "we were friends angain [*sic*] the next day"). Again, a cross-over between online and physical environments presents itself and leads to several consequences.

Consequences of Cyberbullying

The written answer question in the survey asked students to identify the outcome of the situation ("please describe the situation(s) and what happened as a result"), however, not all students chose to respond to this portion of the question. In addition to this, while many students provided information about actions taken to end the aggression, final outcomes were not always given. Therefore, it was not always possible to determine whether or not the cyberbullying ended or was still in existence. Several trends did present themselves, however, in regards to the outcomes of cyberbullying, including if the aggression ended, if someone like a teacher, a parent or police officer, assisted the target, and if there were any consequences to the cyberbully or the target.

Students provided a variety of responses related to the outcome of cyberbullying

incidents, including a definitive end to the aggression, continued harassment, fortunate circumstance ("nothing ever came of it, luckly [*sic*]"), ceasing communication with the bully, engaging in positive action to end the bullying and responding aggressively. Some participants reported that, over time, the cyberbullying ended because the physical size of the target exceeded that of the aggressor. This response emphasizes the frequent connection between cyberbullying and traditional bullying (Gillespie, 2006). However, for some students, the bullying did not end, but rather they were "kind of used to it so they learned to live with it." This type of response fits with the descriptors of self-consciousness and low self-esteem evident in many targets after prolonged bullying experiences (Mitchell, Ybarra & Finkelhor, 2007). Other targets took neutral actions, which varied from "blocking" the bully in communication or game technologies, signing off from the service or website where the bullying occurred, and refusing to respond to messages. According to students' responses, these actions were generally successful in ended the aggression, though it may have taken some time ("he stopped sending messages after her not relplying [*sic*] for a long time"). In a more constructive way, some students created new email accounts or told someone about the bullying. Finally, another group of responses indicated that the aggressive response can be the most effective in dealing with a cyberbully, though there may be other associated consequences, such as escalation before it ends ("faught/bullied [*sic*] back..the bully lef [*sic*] them alone after that"). One reason for this may be that the cyberbully is simply acting in aggression to test boundaries, rather than to cause deliberate harm.

Many students reported assistance from parents, educators or law enforcement to end cyberbullying experiences. In general, when students did appeal to adults in authority for help, a solution was effective, though there were some incidents reported where this was not the case. Some students were confident that simply telling an adult would always result in positive change ("u just say something and it changes like if u tell an adult then it will change"), while others found from experience that adults may not be capable of solving the problem ("She with us [*sic*] told a teacher and she did not know what to do since it was out of school."). In some cases, the bullying ended after the parents of the target and bully spoke with one another. In other cases, the target's parents learned of the cyberbullying, but took little action.

Some schools in the jurisdiction of this study employ a school resource officer who is present to deal with circumstances such as cyberbullying, when necessary. One student reported going "to our resource officer and he and our councelor [*sic*] and our principal took care of it." This type of partnership represents the type and extent of authority necessary to effectively deal with most cyberbullies. Educators were an important source of help and support in ending online harassment, according to the students in this study. According to responses in this study, teachers were often informed of cyberbullying by the target or a bystander. One student explains that "the boy being bullied told a teacher and had it dealed [*sic*] with." Another shared that "other students would hear and they would tell the teachers." Although teachers were generally effective in resolving cyberbullying incidents, this was not always the case because encounters frequently took place outside school hours. According to students, school administration typically dealt with cyberbullies by meeting with them, followed by giving either in-school or out-of-school suspensions. In one case, four students were all suspended over a cyberbullying incident. Educators are acting to deal with cyberbullying, but the reality is that many students will never turn to adults in authority to help them with online dangers (Fekkes, Pijpers & Verloove-Vanhorick, 2005; Hinduja & Patchin, 2005a). In these cases, it would be more helpful if educators work to develop in students "…enough self-confidence and critical maturity to be able to apply critical judgments.." (Frechette, 2006, p. 169).

In some cases, students turned to peers rather than an adult in authority, with positive results. Some bystanders described standing up for their friends, and, as one student said, "i'm tough and i stopped them." Other peers went so far as to contact the cyberbully to determine identity or to warn him or her away from the target. Bystanders also employed more passive measures, such as counselling the target ("i usually talk them through it and get them to realize these people are not worth the time" and "asked his friends for help and they gave him advice and he ended up blocking the person"). Online friends also proved helpful when facing cyberbullies, as "they booted them from the session we were playing." These peer relationships are supportive and helpful, which is a positive alternative to the gang mentality that frequently accompanies cyberbullying.

Students reported various consequences for those who engaged in cyberbullying, including school-related consequences, technology-related consequences, and even legal consequences. However, the majority of consequences seem to have fallen to the target. The target may lose friendships, either because a friend was bullying or because the bully spread rumours or pretended to send messages from the target's MSN, email or cell phone. In addition, targets often relinquished computer privileges, such as MSN or email access due to experience with cyberbully attacks ("we got rid of our personal email accounts and got just one family one that only has my sister on it" and "she never entered that site again"). Some students even experienced anxiety or loss of concentration at school after being contacted by a cyberbully.

Conclusion

According to participants in this study, cyberbullying tactics included the use of threats, verbal abuse, sexual harassment, and pretending. One of the common themes in these cyberbullying methods was an invasion of privacy of the target, through using a target's online account, threatening to harm the target at home or school (traditionally safe places), and telling the target's secrets. As the literature on cyberbullying shows, most bullies know their targets, whereas targets frequently report unknown perpetrators. While cyberbullying often occurred within friendships or romantic relationships, this did not serve to protect the target from aggressive forms of online bullying. Rather, it may have intensified the emotional impact of an attack since it came from a friend. There was a trend of boyfriends and girlfriends who had ended their relationships and proceeded to dispute this through online harassment.

The outcome of cyberbullying situations often depended on the actions taken by the target. Students mentioned actions taken by the target, but were not always clear if these ended the cyberbullying behaviors. In some cases, targets of cyberbullying chose to block the bully or change online account names to avoid the harassment. Others retaliated in aggression, which proved effective in ending the cyberbullying attacks, though not without a relational cost. Many students reported turning to an adult in authority, such as a parent, an educator or a police officer, for help in ending the negative actions against them. Most students reported that this was an effective method of dealing with cyberbullying. Consequences of cyberbullying seemed to affect targets more than bullies. Many bullies reported getting in trouble, being suspended at school, or loss of friendship, but targets experienced emotional trauma, difficulties in school, loss of friendship and trust in other relationships, and loss of privileges or access to communication technologies. However, researchers suggest that schools have a role to play, not only to punish perpetrators of cyberbullying, but in designing interventions to educaqte students and teachers about cyberbullying and to intervene on behalf of targets (Kowalksi & Limber, 20087).

As school bullying has grown to include both traditional and internet aggression, sometimes in tandem, educators must be aware of the consequences to their students and their potential to help (Keith & Martin, 2005; Vaillancourt, Hymel & McDougall, 2003). Although much of cyberbullying occurs outside of school hours and property, it can have a significant impact upon academic performance, class attendance, and student relationships. A school also offers a prime location for dissemination of a hateful or hurtful website, email, or other communication, thus increasing the negative effect of these types of online harassment. Teachers need to be familiar with school policies or help develop school policies, if not in place, on cyberbullying so that they can deal with it effectively when a bystander or a target reports the behaviour. More importantly, a model of learning needs to develop for 21st century education that includes "…awareness, analysis, reflection, action and experience [which] leads to better comprehension, critical thinking, and informed judgments" (Frechette, 2006, p. 169). Students in this study tended to have confidence that adults could help, but if those in authority do not act, this tenuous belief will be lost. Students must also be given the opportunity to speak about their own experiences with cyberbullying. The themes that emerge from their encounters with this phenomenon can open up new directions for researchers and teachers seeking to understand, tackle and reduce cyberbullying.

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A Model for Professional Development in Elementary Science

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Abstract

Statements of outcomes for 21st century learners typically include inquiry-based learning as a major goal. In the PRISM Project, 62 elementary teachers in Montana were selected to receive professional development using inquiry science instruction in their classrooms. Participants attended workshops designed to model inquiry lessons, participated in online discussions to help them make their lessons more inquiry-based, and prepared Scoop notebooks containing three lessons demonstrating how they were implementing inquiry in their classrooms. Based on analysis of these data, participants were judged to have met the goal of the project to increase their use of inquiry in the science classroom.

In recent years much has been written on the need for bringing education into the twenty-first century. Educational reformers such as Ken Kay, president of the Partnership for 21st Century Skills, claim that students need a curriculum that reflects an emphasis on twenty-first century skills such as higher order thinking skills, relationship building, and the use of technology, in particular. These items have been a significant part of educational discussion for many years, but there is now substantial discussion on changing the culture of schools from test-driven reception learning to one of more autonomous student learning. For this to happen, teachers must be equipped to respond to this change. At present, teacher education programs may have such change as a goal, but the emerging emphasis in these programs is for greater attention to clinical experiences to prepare teacher candidates more effectively for the workplace (NCATE, 2010). Emerging changes in teacher education appear to be focusing on making teachers more ready to enter existing classrooms rather than preparing them for twenty-first century classrooms. Therefore, if school cultures are to be changed, it means that current teachers who have mastered school routine need to be equipped to change their view of how students can learn most effectively.

One area in which such change is needed is in the teaching of elementary science. If we examine the typical science textbook of the last 20 years we observe that the memorization of a body of science information is emphasized. Science education reformers of the twentieth century such as Joseph Schwab (1962) and Robert Karplus (1967) believed that the appropriate way for students to learn science was through active engagement in the process of inquiry, building on prior knowledge. Their thinking underpinned the science education reforms of that period. Why has classroom teaching of science not reflected these changes? One reason is that changing the culture of the classroom is a very slow process. While substantial resources have been devoted to professional development for teachers over the decades, little change has been observed.

Changes of the type proposed by Karplus and Schwab are endorsed by the science education professional community. The National Academy of Sciences (National Research Council 1996, 2000) is clear that science in the elementary school means pursuing the goals of studying science: that students are to function as young scientists. This position is endorsed by Bell, Smetana, and Binns (2005) who point out that most students need substantial scaffolding before they are ready to develop scientific questions and design effective data collection. They

indicate that the inquiry scale should be seen as a continuum, whereby students would progress gradually from lower to higher levels during a year. Unfortunately, this need for scaffolding is also evidenced by many elementary school science teachers, especially those who teach in small rural schools. It is essential, therefore, to provide these teachers with professional development opportunities to help them move across the inquiry continuum.

To accomplish this change, teachers will need to change the culture of their classrooms from one of reception learning to one of active learner engagement. The substantial body of literature on inquiry science indicates that the science education community has been focused on this issue. It is also clear that many elementary science teachers would like to incorporate inquiry instruction into their teaching but lack the means to do it effectively.

The purpose of this investigation was to explore methods whereby elementary teachers can become more effective in providing a climate of inquiry science for their students.

Literature Review: Inquiry-based Instruction

In a synthesis of teaching science though inquiry, Haury (1993) recognizes the differing conceptions of inquiry presented by science educators, but we suggest that many of these differences can be addressed by adherence to the inquiry continuum. While advocacy for inquiry-based instruction is generally conceptual in its support, researchers look for evidence that students learn more science when inquiry methods are used. Mattheis and Nakayama (1988) found that inquiry-based programs in the middle grades enhanced student performance, especially with regard to laboratory skills and graphing and data interpretation skills. Glasson (1989) found students scored higher on tests of procedural knowledge, while Lloyd and Contreras (1985) found increases in vocabulary knowledge and conceptual understanding. However, these are isolated studies and broad generalizations should not be made.

Cobern, Schuster, Adams, Applegate, Skjold, Undreiu, Loving, and Gobert (2010) undertook a carefully controlled experimental study comparing the efficacy of carefully designed inquiry instruction and equally carefully designed direct instruction in realistic science classroom situations at the middle school grades. They found that inquiry and direct methods led to comparable science conceptual understanding in equal instructional times. Given that many of the intended benefits of inquiry instruction are not reflected in such tests, they argued that the expected benefits of direct instruction were not evident. Thus they support well-designed, active engagement lessons which are well taught.

On the other hand, Minner, Levy, and Century (2010) synthesized research on inquiry-based science instruction over an 18 year period and concluded that the evidence of effects of inquiry-based instruction was not overwhelmingly positive. They did find that hands-on experiences with scientific or natural phenomena were found to be associated with increased conceptual learning. However, they did not find that high levels of inquiry were associated with more positive learning outcomes for students.

While these findings offer only mild support for the use of inquiry-based methods in the science classroom, it can be argued that typical assessment methods place inquiry methods at a disadvantage. Therefore, we can argue that in the spirit of the National Science Education Standards (NRC, 1996, 2000) teachers should continue to be encouraged to use inquiry methods, where appropriate, in their classroom instruction in science.

The PRISM Project

The Partnership to Reform Inquiry Science in Montana (PRISM) was designed to prepare rural elementary teachers to improve student science achievement in Montana schools. It is a research-based state Math and Science Partnership project sponsored through the Montana Office of Public Instruction. For three years this project worked with 52 teachers in a large region in the southeast portion of Montana. The specific partner Local Education Associations were chosen based upon high need, availability and project guidelines. No school chosen was under 30% free and reduced lunch, a common indicator of schools of low SES status.

The professional development focused on increasing the science subject matter knowledge of teachers, increasing teacher understanding and use of effective, research-based instructional strategies (specifically, inquiry-based instruction), and increasing teacher competency in the use of educational technology.

Accomplishing the Goals of the PRISM Project

A variety of activities were used to accomplish the project goals. The National Science Teachers' Association (NSTA) SciPacks were selected to measure teachers' knowledge of content appropriate to elementary school science. Not only do these SciPacks present content that elementary teachers should master, but the presentation of the content is interactive and supports an inquiry approach to science instruction. Over the course of the project, participants completed six SciPacks. Teachers were encouraged to adapt SciPack lessons in their own teaching.

An emphasis on inquiry instruction was a priority of this project. The Inquiry Continuum (see categories in Tables 2 and 3) served as the standard against which progress towards the goals of inquiry would be measured. Workshop sessions focused attention on the modeling of inquiry lessons. These lessons were led primarily by science educators, but some participants also shared successes from their classrooms. In online discussions, participants addressed strategies they were using to make their instruction more inquiry based, including the adapting of regular text-based science lessons to a more inquiry focus. The primary evidence for the teachers' use of inquiry was supplied by the use of Scoop notebooks (Borko, Stecher, & Kuffner, 2007). Teachers were asked to compile a notebook of evidences from their classroom over a period of three months during their second year in the project. These classroom samples were self-assessed for the level of inquiry reached and were also assessed by a project evaluator.

Findings from the Project

Use of inquiry in the classroom. Anecdotal and survey information from workshop evaluations indicated that the participants learned a great deal from the modeling of how to use inquiry in instruction. In their survey question responses to each workshop they requested more modeling of inquiry-based science lessons, and more experience working with the inquiry continuum. They were very positive about their desire to change the culture of their classrooms.

In a follow-up workshop teachers continued to see the transition to a more inquiry-based approach to science instruction as a high priority. They had been thinking about it for a whole year, but it was evident from their responses that they still needed more modeling of ways to integrate it successfully into their classrooms. They were clearly still on a learning curve with

regard to how to make their instruction more inquiry-based. A surprising result was the number of teachers who were not accustomed to the 5E's lesson planning model.

Participants were introduced to the Scoop notebook and the process involved in collecting data. They were also introduced to the use of Desire to Learn (D2L) as a strategy for Blended Learning (mixed live/online). A common participant reaction was that they would have liked more time to feel comfortable with working with D2L before being responsible for it on their own.

Online discussions which addressed ways of making science lessons more inquiry-based reflected such a change in culture.

Analysis of participants' written comments. At each workshop participant satisfaction responses have been uniformly positive. (See Table 1.)

Participants enjoyed the activities, and the more reflective of them welcomed having essential features of inquiry science modeled for them through these activities. One comment that has been oft repeated is that a number of the participants are looking for a repertoire of inquiry-based activities to take away with them from the workshop. This is not a surprising finding–we have encountered this type of response in a wide range of professional development activities for teachers. It does make good sense for teachers to go away from a workshop with a lot of ready-made ideas to put into practice. The danger is when we cross the line providing teachers with access to valuable resources to "spoon-feeding" them. What is disturbing to us is that one goal of inquiry-based learning is to have teachers become more reflective in their selection of learning materials. Some of the D2L learning assignments set out to do just that, especially in terms of having participants convert a textbook based activity into an inquiry-based activity, and some of the responses suggested that this was too time-consuming. As we interviewed many of these teachers, typically outside of regular school hours, we noted that their school commitments engaged them for many hours and left them little time for reflection or for finding new resources. In that sense, if the goals of the project are to be attained in a sustainable manner, teachers need to learn to share access to valuable resources. We judge that this is one reason why these workshops have been so well appreciated. But they are also a costly portion of the project and, in a region as large as that embraced by this project, distance learning/conferencing becomes the only cost-effective way of promoting such collegiality.

The area of participant responses that was not always so positive dealt with their views towards online interaction (D2L). Perhaps the staff and the participants should have met to discuss together what should be expected using D2L. From our personal interactions with the participants, as well as our reading of their workshop comments, we judge that the participants do want to use D2L effectively, but they want its use to be smooth. Clearly, in a region such as that embraced by this project, professional development must include an online component if it is to be economically viable. We would recommend that preparatory training is distance learning be prerequisite to any professional development program.

Notwithstanding the mildly positive/neutral comments about D2L, participants continued to be quite satisfied with the workshops. Now that the project is completed, attention must be directed to finding ways of continuing to accomplish the goals of the project in a cost-effective manner.

Scoop notebooks. In order to understand the degree to which the goals and objectives of

Table 1

Analysis of Participant Feedback (Workshop Evaluation April 23-24, 2010)

Analysis of Ratings

1. I am making substantial use of the knowledge gained from the SciPacks in my teaching of science.
   The median response was Strongly Agree.

2. The Inquiry Continuum is improving my ability to teach using the methods of inquiry science.
   The median response was Agree. This result is again very positive, but we might have expected that it would have been stronger, especially because the teachers had had two years to become accustomed to using the continuum.

3. The teacher workshops are improving my ability to teach using the methods of inquiry science.
   The median response was Agree (leaning towards Strongly Agree). This positive response supports the written comments the participants made about the workshops.

4. The teacher workshops have increased my knowledge of content needed to teach science in my classroom.
   The median response was Agree. While one might initially expect the rating to be closer to Strongly Agree, we must remember that the workshops have focused on instructional strategies, not content. Of course, participant content knowledge would have been strengthened by the science activities in which they were engaged. The surprising rating is the teacher who was ambivalent about responding to this and the previous statement. (From personal interviews with each teacher, the evaluator was unaware of any such ambivalence.)

5. My school's administration has supported my involvement in the PRISM Project.
   The median response was Agree. Sometimes the response to a question of this type may be a matter of perception, but it is disconcerting to note that administrative endorsement was a precondition of participation in the project. At least one respondent validated this dissonance in the narrative comments. We note that administrative interest in the workshops has been modest at best, in spite of their receiving invitations to attend. This must raise questions about the capacity of the goals of the project to be spread to other teachers who might potentially be impacted by project teachers. It will be interesting to note the effectiveness of those teachers from the Cohort who will engage in Year 3 of the project, essentially to mentor their colleagues in inquiry science.

6. The PRISM Project Staff has supported my involvement in the PRISM Project
   The median response was Strongly Agree. It is pleasing that the participants are satisfied with their contacts with project staff.

7. The D2L online course has been effective in improving my ability to teach using the methods of inquiry science.
   The median response was Neutral. This response is not surprising in view of the extensive comments about D2L in the participants' additional comments. Some of the issues were technical in nature, but others raised questions about using the online instruction more effectively.

8. The pedagogical discussions have been successful in improving my ability to teach using the methods of inquiry science.
   The median response was Neutral. It is not unexpected that this item's ratings should be consistent with those of Item 7.

9. The pedagogical discussions have been successful in increasing my knowledge of content needed to teach science in my classroom.
   The median response was Neutral. This response is consistent with those of the two previous items and the remarks made earlier are valid here.

10. The content discussions have been successful in increasing my knowledge of content needed to teach science in my classroom.
    The median response was Neutral. Again, the responses to all of the items dealing with D2L remain consistent and point to the need to address how D2L is implemented.

11. The content discussions have been successful in improving my ability to teach using the methods of inquiry science.
    The median response was Neutral. Again, the responses to all of the items dealing with D2L remain consistent and point to the need to address how D2L is implemented. It needs to be remembered that one goal of this project is to make inquiry science accessible to remote area teachers, and online learning and discussions are integral to achieving this goal. It is critical, therefore, that problems (real or perceived) in making D2L effective need to be addressed.

12. Creating a Scoop Notebook has been successful in improving my ability to teach using the methods of inquiry science.
    The median rating was Agree, indicating that the teachers view it positively. More discussion of this issue will be found in the analysis of the SCOOP notebooks.
    These ratings taken as a whole support the participants' overall satisfaction with the project. The one issue that caused concern deals with the implementation of D2L. These ratings results are all consistent with the written comments that the participants made at the same time.

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the PRISM Project were reflected in teachers' practices, participants collected artifacts from three of their science lessons to create a "Scoop" Notebook (a procedure developed at the National Center for Research on Evaluation, Standards, and Student Testing (CRESST), 2007). Teachers collected artifacts of classroom practice and made observations in the forms of pre and post-reflections similar to the way a scientist might take a sample from nature to analyze back in

a laboratory. For each scooped lesson teachers were instructed to include a lesson plan, instructional materials (handouts, worksheets), examples of student work (high, medium, and low quality), tests, quizzes, rubrics, and pictures of the classroom set-up, including instructions on the whiteboard, and instructional tools/materials.

Scoop Notebooks were evaluated using rating scales that included the five Essential Features of Classroom Inquiry (Montana K-12 Content Standards and Performance Descriptors for Science-Inquiry Continuum, 2008. Office of Public Instruction.) Teachers were also asked to rate their own lessons using the five Essential Features of Classroom Inquiry. Although the teachers evaluated each individual "scooped" lesson, the evaluator gave a rating based on an overall evaluation of the Scoop Notebook. A total of 16 Scoop Notebooks were collected from the first cohort, a turn-in rate of 64%. Forty-eight science lessons total were included in the Scoop Notebooks.

Overall, it was clear from the Scoop Notebooks that teachers were using inquiry-based science instruction in their classrooms and the Scoop Notebook was a useful tool for understanding what science instruction looks like in teachers' classrooms. The majority of the lessons incorporated elements of inquiry-based instruction either somewhat or to a great extent, according to both teachers and the evaluator (See Tables 2, 3).

Table 2

Teachers' Rating of Inquiry in Scoop Lessons (N=48 lessons)

To what degree does this lesson…	Not at all 1	Very little 2	Somewhat 3	To a great extent 4
Engage learners in scientifically oriented questions?	0 (0%)	6 (13%)	26 (54%)	16 (33%)
Allow learners to give priority to evidence in responding to questions?	0 (0%)	5 (10%)	29 (60%)	14 (29%)
Allow learners to formulate explanations from evidence?	0 (0%)	4 (8%)	24 (50%)	20 (42%)
Enable learners to connect explanations to scientific knowledge?	0 (0%)	5 (10%)	29 (60%)	14 (29%)
Enable learners to communicate and justify explanations?	0 (0%)	9 (19%)	24 (50%)	14 (29%)
Reflect the Essential Features of Classroom Inquiry (overall)?	0 (0%)	4 (8%)	29 (60%)	15 (31%)

Table 3

Evaluator's Rating of Inquiry in Scoop Notebooks (N=16)

To what degree does this lesson…	Not at all 1	Very little 2	Somewhat 3	To a great extent 4
Engage learners in scientifically oriented questions?	0 (0%)	4 (25%)	7 (47%)	5 (31%)
Allow learners to give priority to evidence in responding to questions?	0 (0%)	1 (6%)	4 (25%)	11 (69%)
Allow learners to formulate explanations from evidence?	0 (0%)	4 (25%)	9 (56%)	3 (19%)
Enable learners to connect explanations to scientific knowledge?	0 (0%)	2 (13%)	10 (63%)	4 (25%)
Enable learners to communicate and justify explanations?	0 (0%)	5 (31%)	7 (47%)	4 (25%)

Interestingly, one area in which there was disagreement between the teachers' rating and the evaluator's rating was the degree to which the lesson allowed learners to formulate explanations from evidence. This may be due to the difference between how the lesson was actually taught and the evidence that was provided in the Scoop Notebook.

Conclusion

In a project which set out to increase the ability of a cadre of rural elementary teachers to use science inquiry, positive results have been obtained. However, these findings are tempered by the conditions existing in many rural schools. As a result of the professional development, participants certainly met the expectations of the project, but could this progress be expected to continue without grant support. Would teachers continue to collaborate with colleagues at a distance without some significant incentive? We believe we have demonstrated that we can help teachers make a transition to more inquiry-based instruction, but we are not so clear that this transition can be maintained without external impetus. It is true that these teachers have increased their use of inquiry in science teaching during the timeline of the project, but further growth is unlikely unless the teachers have strong encouragement to do so. If we are committed to incorporating twenty-first century instructional strategies into our educational system, then resources need to be made available for this to happen.

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Career Coaching Across the Curriculum: Enhancing the Career Competencies of the 21st Century Learner

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Abstract

This article examines the effectiveness of a pilot project offered by members of the Faculty of Education at the University of Lethbridge entitled, "Career Coaching Across the Curriculum: Integrating Career Development into Classroom Instruction". It explores whether this pilot project effectively prepares pre-service teachers to integrate career education into curriculum. It also explores whether this pilot project contributes to the attainment of important career development competencies for students in the Kindergarten-Grade 12 educational system.

There is a growing recognition of the need to provide students in the Kindergarten-Grade 12 educational system with opportunities to develop critical career/life management competencies (Government of Alberta, 2010; McMahon, Patton & Tatham, 2003). The workplace of the knowledge era is a radically different place at the beginning of the 21st century compared with the 20th century (Jarvis, 2006). To thrive in the 21st century world of work individuals need to be equipped with competencies that will enable them to transition repeatedly between learning, work and other life roles in order to create a life balance for themselves that is both satisfying and productive (Amundson, Parker & Arthur, 2002, McMahon, Patton & Tatham, 2003). These competencies include: building and maintaining a positive self-image, participating in lifelong learning supportive of life/work goals, locating and effectively using life/work information, understanding the changing nature of life/work roles, being resilient and managing change in chaotic environments, remaining hopeful and self-confident, setting short and long term goals in the face of obstacles and competing pressures, engaging in activities that promote self-recycling and self-renewing, understanding, engaging in, and managing one's life/work building process, and working effectively in diverse teams, (Borgen & Hiebert, 2006; Campbell & Ungar, 2008; Hartung, Porfeli & Vondracek, 2008; Jarvis, 2009; Partnership for 21st Century Skills, 2004).

A document recently released by the Province of Alberta (2010) entitled "Inspiring Action on Education" exemplifies the growing importance being attached to developing career/life management competencies in students. This document sets forth an agenda for transforming the education system in Alberta and specifically targets competencies such as lifelong learning, self-direction and personal management. The writers of this document argue that these competencies need to be more central in the education of young people if they are to be active participants in an increasingly knowledge-based and globalized society. As stated in the document,

Alberta students develop competencies that help them to contribute actively and positively in their communities. Throughout life, students balance various roles and life-work priorities while understanding their personal strengths, history and identity. They participate in career exploration and planning as they adapt to change and seek opportunities for personal and professional growth throughout their lives. (p.11)

The most effective way to develop career self-management competencies in students is to

infuse career education across curricular subjects and throughout the Kindergarten-Grade 12 educational experience (Gyspers, 2001; Magnusson & Bernes, 2004; Magnusson & Bernes, 2002; Palladino Schultheiss, 2008, Partnership for 21st Century Skills, 2004). In the past career planning support has typically been provided through ancillary services (for example, guidance counsellors) or through stand alone courses (for example, courses such as Career and Life Management offered to high school students in the Alberta K-12 school system) and has been primarily targeted at high school students. However, there is increasing recognition that career development and transition services must emphasize a process rather than a single event or series of events and must be provided throughout the K-12 educational experience (Levinson & Ohler, 2006; Palladino Schultheiss, 2008). As experts in the field of career development suggest, an effective educational curriculum is one that infuses career-building competencies throughout the school program (Harkins, 2000; Magnusson & Bernes, 2004; Palladino Schultheiss, 2008).

According to this model, teachers across all grade levels and subjects support the development of career self-management competencies by infusing career education into regular curriculum. This can be done in many creative ways. In elementary Science classes, for example, teachers could read stories about people who work in various science-related occupations. As well, guest speakers could be brought in from the community to describe the roles they fulfill in their science-related occupation. Students could also go on fieldtrips to organizations focused on science related work. In middle school Health classes, for example, students could learn about how the pursuit of personally meaningful goals contributes to well-being. They could learn the characteristics of effective goals and the role of optimism in achieving such goals. In high school English classes, for example, students could engage in journal writing activities that help them identify sources of personal meaning. Students could write about past personal experiences in their lives that generated feelings of pride and satisfaction. Following this they could share their stories with their peers and with their teacher and could receive feedback concerning the themes contained in their story (e.g. what personal skills and characteristics were exhibited in the story, what seemed to be particularly meaningful about the experience described, etc.). These are only a few brief examples of how the competencies described earlier in this article could be fostered in children and adolescents through an infusion of career education across curriculum topics and grade levels in the K-12 educational system. Such an approach, if conducted in a systematic and developmentally appropriate manner, would build relevance for learning and would assist students in developing, over the course of their K-12 education, the knowledge, skills and attitudes to successfully navigate the 21st century world of work.

One example of an initiative designed to facilitate the infusion of career education into curriculum is the pilot project *Career Coaching Across the Curriculum: Integrating Career Development into Classroom Instruction* currently being offered by members of the Faculty of Education at the University of Lethbridge. This pilot project involves two main components. In the first component, pre-service teachers in the Faculty of Education are given the opportunity to take an elective course entitled Career Education. In this course, they learn about the career planning process, career theorists, career counselling skills, career counselling outcomes, career assessments (informal, semi-formal, and formal), effective initiation and engagement strategies, effective decision-making strategies, effective goal-setting and preparation strategies and effective exploration and goal-implementation strategies. They also learn about the world of work in the 21st century and how changes in the world of work impact the career planning of students. As well, they learn how to integrate career education lesson plans, unit plans and

school wide interventions into regular curriculum.

In the second component of this pilot project, after successfully completing the Career Education course, pre-service teachers function as interns in various schools (elementary, middle, and high schools) throughout Southern Alberta. They are provided with a 15 week internship wherein they are given the opportunity to implement into elementary, middle and high school classrooms the career education lesson plans, unit plans and school-wide interventions they developed in the Career Education course. During their internship they work under the supervision of a Teacher Mentor and are given the responsibility of maintaining 50% of the workload of a full-time teacher.

It is important to examine whether this pilot project is effectively preparing pre-service teachers to integrate career education into curriculum and whether this training is enhancing students' attainment of career/life management competencies. At the time of this article, two (out of four) cohorts of students have taken the Career Education class and have completed their internship experiences. This article will examine the effectiveness of the Career Education class in training these two cohorts of pre-service teachers to integrate career interventions into curriculum. As well, it will examine the impact of this training on the career development of students in the K-12 educational system.

The following section will describe the research methods utilized in this research study.

Method

Evaluation Framework

In 2005, the Canadian Research Working Group for Evidence-Based Practice in Career Development (CRWG) was formed by a number of Canadian researchers in response to criticisms by policy makers that there is little existing evidence to support the efficacy of career development services and interventions (Baudouin et al., 2007; Lalonde, Hiebert, Magnusson, Bezanson, & Borgen, 2006). The CRWG endeavored to address the criticisms of policy makers by developing a model for evaluating career development services and interventions. After extensive collaboration, members of the CRWG developed a framework to support the effective evaluation of career development services and interventions. According to members of the CRWG, an effective evaluation makes explicit links between the nature of the program being evaluated, the way in which the program is delivered, the ways in which participants engage with the program, the type of learning the participants experience, and the impact of the program on the lives of the participants (Hiebert & Magnusson, 2008; Smith, Schalk, & Redekopp, 2009). The evaluation framework developed by the CRWG reflects these characteristics. The framework developed by the CRWG was utilized to investigate the effectiveness of the *Career Coaching Across the Curriculum: Integrating Career Education Strategies in the Curriculum* pilot project.

Procedure

Data were collected in several ways. A formative evaluation of lectures and activities was administered at three separate junctures during the Career Education course. A summative evaluation was administered after the final Career Education class. Finally, formative and summative evaluations were administered by pre-service teachers to students in the K-12 schools

in Southern Alberta during their internships. The data gathered through these evaluations were analyzed through the use of frequency counts, percentages and mean scores. The qualitative responses provided by pre-service teachers and by students in the K-12 educational system are presented in this article as verbatim quotations. All of the evaluation tools utilized in this study were paper and pencil documents and were completed anonymously.

Sample

Pre-service teachers in this study were self-selected. Advertisements were circulated throughout the Faculty of Education at the University of Lethbridge. All pre-service teachers enrolled in the Faculty of Education teacher-training program were eligible to register in the Career Education course and the practicum experience. In total, twenty-one (N=21) pre-service teachers participated in the first two offerings of the Career Education class and thirteen (N=13) pre-service teachers participated in the first two offerings of the internship experiences. Ten (N=10) pre-service teachers participated in the first offering of the Career Education class. Five (N=5) pre-service teachers participated in the first offering of the internship experience. Eleven (N=11) pre-service teachers participated in the second offering of the Career Education course. Eight (N=8) pre-service teachers participated in the second offering of the internship experience.

The majority of pre-service teachers who participated in the first two offerings of the Career Education class and the internship experiences were between the ages of 20-29 (72%), and female (90%). Pre-service teachers in the Education program at the University of Lethbridge select a major and a minor course of study but they do not specialize in terms of elementary, middle or high school. The pre-service teachers described in this article represented a broad range of major and minor specializations (Social Studies Education, Art Education, Drama Education, English Language Arts Education, Science Education, Physical Education, Mathematics Education, etc) and were placed in a broad range of schools (for example, inner city schools, rural schools, elementary schools, middle schools, high schools).

In the following section the results of the data will be presented.

Results

The results of the study will be presented according to the following sections: Formative evaluation, summative evaluation, and student questionnaires.

Formative Evaluation

The Career Education course was offered on four weekends in May/June, 2009 and on four weekends in September/October, 2010. In the first three weekends of the course pre-service teachers were guided in an exploration of important topics in career education (for example, career theorists, career counselling process, career counselling outcomes). In the final weekend, pre-service teachers were required to present to their peers the lesson plans, unit plans and school wide interventions they intended to implement in their internship experiences. The first group of pre-service teachers participated in the Career Education class in May/June, 2009. The second group of pre-service teachers took the Career Education class in September/October, 2009. After each of the first three weekends each pre-service teacher was asked to complete an evaluation of the weekend's topics and activities (the fourth weekend was not evaluated since it was comprised

of presentations by pre-service teachers and did not contain new content).

When completing the evaluation forms pre-service teachers were first asked to indicate their level of participation in each of the topics and activities by indicating whether they didn't participate (1), somewhat participated (2) or fully participated (3). Participation in the topics and activities across the three weekends was high – 96% of pre-service teachers indicated that they fully participated in the career education topics that were presented in the Career Education class.

After indicating their level of participation, pre-service teachers were asked to indicate whether they found the topics and activities useful. They were first asked to indicate whether they found the topic or activity useful. Then they were further asked to identify whether they found the activity not useful (0), not really useful, but almost there (1), minimally useful (2), somewhere between minimally useful and extremely useful (3), or extremely useful (4).

Table 1 provides a description of the data collected after the first weekends (group one and group two) of the Career Education course.

Table 1
Formative Evaluation of Topics and Activities Weekend #1 (N=21)

Topics	Average Usefulness
Career counselling triads exercise	3.9 (extremely useful)
Career counselling skills	3.7 (extremely useful)
General counselling process	3.7 (extremely useful)
Career counselling process	3.6 (extremely useful
Career counselling outcomes	3.5 (extremely useful)
Career theorists	3.5 (extremely useful)
World of work	3.2 (minimally useful/extremely useful)
Weekend #1 average	3.6 (extremely useful)

As indicated in Table 1, pre-service teachers highly rated all of the topics and activities presented in the first weekend of the Career Education class. The vast majority of topics were rated as either minimally useful/extremely useful (3) or extremely useful (4). The highest rated topics/activities were: career counselling triads activity (3.9), lectures/discussions on general counselling process (3.7), lectures/discussions on counselling skills (3.7), and lectures/discussions on the career counselling process (3.6).

Table 2 presents the data collected after the second weekends (groups one and two) of the Career Education course.

Table 2

Formative Evaluation of Topics and Activities Weekend #2 (N=21)

Topics	Average Usefulness
Past experiences	3.9 (extremely useful)
Informal career assessments	3.8 (extremely useful)
99 year old question	3.8 (extremely useful)
Guided imagery exercise	3.8 (extremely useful)
Pride story exercise	3.7 (extremely useful)
Initiation strategies	3.7 (extremely useful)
Semi-formal career assessments	3.6 (extremely useful)
Formal career assessments	3.5 (extremely useful)
Weekend #2 average	3.7 (extremely useful)

As Table 2 suggests, pre-service teachers found the topics and activities presented in the second weekend of the Career Education class very useful. All of the topics and activities were rated as extremely useful (4). The highest rated topics/activities were: "past experiences" exercise (3.9), informal career assessments (3.8), 99 year-old question activity (3.8), and "guided imagery" (encouraging participants to envision an ideal day/future) exercise (3.8), and discussion of informal career assessments (3.8).

Table 3

Formative Evaluation of Topics and Activities Weekend #3 (N=21)

Topics	Average Usefulness
Self-portraits exercise	3.8 (extremely useful)
Decision-making process	3.8 (extremely useful)
Exploration strategies	3.8 (extremely useful)
Decision-making strategies	3.8 (extremely useful)
Preparation strategies	3.8 (extremely useful)
Implementation strategies	3.7 (extremely useful)
Weekend #3 average	3.8 (extremely useful)

Table 3 presents the data collected after the third weekends (groups one and two) of the Career Education course.

As is indicated by the data in Table 3, pre-service teachers highly rated the topics and activities presented in the third weekend of the Career Education class. All topics and activities were rated as extremely useful (4). The highest rated topics/activities were: self-portraits exercise (3.8), the decision-making process (3.8), exploration strategies (3.8), decision-making strategies (3.8), and preparation strategies (3.8).

Summative Evaluation

At the culmination of the Career Education elective course pre-service teachers were asked to complete a summary evaluation. In completing the summary evaluation, participants were asked to rate themselves prior to taking the Career Education course and after taking the Career Education course. In doing so, they were asked to first decide whether their knowledge, skills or attitudes (on a number of important outcome items) were acceptable or unacceptable before and after taking the course. Then they were asked to identify whether their knowledge before and after taking the course was unacceptable (1), not really acceptable, but almost there (2), minimally acceptable (3), somewhere between minimally acceptable and exceptional (4), and exceptional (5).

Table 4 summarizes the data collected through the summary evaluation.

Table 4

Summary Evaluation of Career Education Class

Outcomes	Average Pre-score	Average Post-score	Average Difference
Confidence in my ability to integrate career development principles into the curriculum	1.6	4.7	3.1
A clear understanding of how the theories of career planning influence practice	1.5	4.5	3.0
Knowledge of processes involved in effective career self-management	1.8	4.8	3.0
A clear understanding of the theories of career development	1.5	4.2	2.7
A clear understanding of how to get students involved in, and excited about, the importance of career planning	2.1	4.7	2.6
Knowledge of resources available to students and teachers to assist students in their career planning	1.9	4.5	2.6
Understanding of the impact a teacher can have on career development of students	2.9	5.0	2.1
Understanding of the importance of lifelong career self-management	3.0	5.0	2.0
Overall means	2.0	4.7	2.7

As Table 4 clearly shows, pre-service teachers indicated that they achieved many

important outcomes as a result of participating in the Career Education class. On nearly all the outcome items they rated their knowledge, skills and attitudes as "unacceptable" or "not really acceptable, but almost there" before taking the Career Education. However, in all of the cases pre-service teachers rated their knowledge, skills and attitudes as either acceptable or exceptional after taking the Career Education course (as shown by mean score differences). The highest differences in mean score changes were found in the following items: "confidence in my ability to integrate career development principles into the curriculum" (1.6 to 4.7), "a clear understanding of how the theories of career planning influence practice" (1.5 to 4.5), and "knowledge of processes involved in effective career self-management" (1.8 to 4.8). Overall, pre-service teachers reported that prior to taking the Career Education class their knowledge of career development theory and practice and their confidence in their ability to provide effective career development support to students was minimally acceptable (overall mean score of 2.0); after taking the class they reported that their knowledge and confidence was exceptional (overall mean score of 4.7).

Pre-service teachers were asked to identify the extent to which the changes reported in the summary evaluation were the result of taking the Career Education course, or the extent to which the changes reported were a function of other factors in their lives. Specifically, they were asked to identify whether the changes reported were a result of "mostly other factors", "somewhat other factors", "uncertain", "somewhat this course", and "mostly this course". Ninety-five percent (N=20) of pre-service teachers attributed the changes they reported in the summary evaluation to the instruction they received in the Career Education course.

As part of the summary evaluation, pre-service teachers were also given the opportunity to provide comments about their experiences in the Career Education course. The following comments were contributed:

- Great course! Great for personal reasons as well as for integrating into the curriculum. Would have liked a bigger focus on classroom uses rather than adult career counselling.
- I found this course to be an incredibly valuable experience that provides teachers with the knowledge, skills and resources to teach career/life planning effectively!
- This course gave me many skills to develop as a teacher and personally which I feel will greatly improve my effectiveness as a teacher.
- The course was beneficial not only to my own career development, but to the understanding of career planning and career coaching. I feel confident with bringing the aspects of career coaching to the classroom.
- This class was great! So very beneficial to career planning as well as life in general. I continue to find myself using strategies learned in class on a daily basis (all stages of career process). I have and will continue to recommend this class. Very beneficial to all teachers for all areas of the curriculum.
- I found this course especially rewarding and hope to bring my enthusiasm about this new knowledge to others during my internship and teaching years to follow.
- Great class that helped with my career planning as well.
- This was the most impactful, creative, and useful education course I have taken.
- The course material was presented in a way that made it easy to incorporate into curriculum.
- This has been one of the most helpful, interesting, and applicable courses that I have taken in the four years in my university career. Everything I learned in this class can be applied to the classroom environment and is very relevant to students.

- It is a great course and needed especially for Junior and Senior High students.
- It was a great learning experience for me! I hope to pass on what I learned to my students!
- This course was extremely beneficial and the info learned will be incorporated into my teaching. I liked doing presentations at the end so I could get more ideas on how to incorporate career counselling strategies into my teaching.
- This course didn't just help with career counselling but how to improve all relationships.
- It makes sense to me now that this is "life-planning", not just career planning. Excellent course!
- Life changing course! Most valued course throughout entire university education experiences!
- Great class. Learned so much valuable information. I feel this class should be integrated in every classroom.
- Great course and instructor.
- Great class, very eye-opening; it will be interesting to see what effects this will have on students graduating 5-10 years from now (hopefully they will be better prepared).
- This course was amazing, and will become a part of my teaching philosophy.

The following section describes the data that was collected by pre-service teachers during their internship teaching experiences.

Student Questionnaires

After pre-service teachers completed the Career Education elective class they were provided the opportunity to apply what they learned in an internship teaching experience. The first group of pre-service teachers participated in the Career Education internships in September-December, 2009. The second group of pre-service teachers participated in the internships in January-April, 2010. As part of this practicum teaching experience pre-service teachers were required to integrate career education into curriculum and provide career education lesson plans, unit plans and/or school wide interventions to students. As well, they were required to conduct an evaluation to assess the participation level of students, the perceived usefulness of their lesson plans/unit plans/school wide interventions and the outcomes resulting from their interventions.

The research questionnaire they distributed to students following their interventions required students to answer several questions. First, students were asked to indicate their level of participation. They were provided a list of career education activities implemented by the pre-service teacher and then were asked to indicate whether or not they participated in the activity.

Second, students were asked to rate the usefulness of the career education activities implemented by the pre-service teacher. They were given a list of the activities and asked to rate each activity by indicating whether it was "not good at all", "good" or "great".

Third, students were asked to consider four outcome statements: "This lesson, unit plan, school wide intervention helped me to learn a lot about myself", "This lesson, unit plan, school wide intervention helped me learn a lot about careers", "This lesson, unit plan, school wide intervention made me excited about what I could do with my life", and "This lesson plan, unit plan, school wide intervention made me want to learn more about different careers". In considering these outcomes statements, students were asked to indicate how much they agreed with each one by circling one of the following three options: "I don't agree", "I'm not sure", or "I agree".

Fourth, students were asked to describe what they liked about the career education interventions. They were also asked to indicate how the career education interventions could be improved.

Evaluation forms were gathered from 323 students in the K-12 educational system in Southern Alberta. The students ranged from six to eighteen years of age and their level of education ranged from Grade One to Grade Twelve. Students completed the questionnaires independently. In special cases, students with limited writing proficiency were aided by a scribe when completing the research questionnaires.

Participation in the lesson plans/unit plans and school wide interventions were high – 92% of students indicated that they fully participated in the career education intervention being evaluated.

Table 5 provides a description of the usefulness of the career education interventions as reported by students.

Table 5
Perceived Usefulness of Interventions

Usefulness of activities	f	%
Not at all good	84	5%
Good	465	29%
Great	1029	65%
Total	1578	100%

As shown in Table 5, students rated the career interventions as being very useful. Sixty-five percent of the activities were rated "great", 29% were rated "good" and only 5% were rated "not at all good".

Table 6 provides a description of the overall outcomes of the career education interventions.

Table 6

Outcomes Resulting from Interventions (N=323)

Outcomes	I Don't Agree	I'm Not Sure	I Agree
This lesson plan, unit plan, or school wide intervention helped me to learn a lot about myself	23 (7%)	112 (35%)	187 (58%)
This lesson plan, unit plan or school wide intervention helped me to learn a lot about careers.	23 (7%)	69 (21%)	228 (71%)
This lesson plan, unit plan, or school wide intervention helped make me excited about what I could do with my life.	16 (5%)	79 (24%)	227 (70%)
This lesson plan, unit plan, or school wide intervention made me want to learn more about different career paths.	21 (7%)	83 (26%)	217 (67%)

As shown in Table 6, the majority of students reported that they learned a lot about themselves (58%), they learned a lot about different career paths (71%), they became more excited about their future career/life (70%) and they became more motivated to continue learning about career planning (67%).

On the evaluation forms students were also given an opportunity to provide qualitative feedback on the career education lessons delivered by the pre-service teachers. Students were asked: "What did you like about the lesson plan, unit plan or school wide intervention?" The following are sample responses provided by students:

- It explained jobs that I didn't know about.
- I liked this unit because it helped me to find out my dream job and more about myself and others.
- I learned things about myself that I didn't know. I also learned things about my friends that I didn't know.
- I liked the 99 year-old question because it made me think about all the stuff I might do in my life and it also made me think about some stuff I might not have thought about had I not done the project.
- I liked that we got/found good resources for the future.
- I liked learning about myself and knowing what I want to do later in my life.
- The good part about it was we got to think about our future and what we have to do to achieve it.
- I got to think of the fun jobs I can do in the future. I got to remember all of my moments where I was really proud.
- I liked the fact that I got to explore my favorite careers and it was really cool having our guest speakers come in.
- I liked how it gave you the chance to share stories and imagine your future life.

Students were also asked to respond to the question: "How could this lesson plan, unit plan or school wide intervention be improved?" The following are sample responses provided by students:

- Going to work places.
- It could be done more often like two days a week and not once every three weeks.
- Going to see people at their work and watching videos.
- Getting to try the jobs.
- I would like to have more time to do the activities.
- To bring more guest speakers.
- I think it should be longer. I really liked it.
- Maybe by having a list of 20 or 30 careers with a description of what you would do.
- I think it could be made better by telling us the kind of education you need for certain jobs and giving the Career Week more time (maybe make it longer).
- It could be made better with more activities or more time – make Career Week into Career Month.

As can be seen in the comments above, when students were asked to provide feedback as to how the career education interventions could be improved the only suggestions they provided was to offer more interventions.

In summary, data were collected on a wide array of factors in order to examine ways to improve the Career Education elective course. Data were also collected to determine the value of the course in training pre-service teachers to assist students in their career planning. The following section will provide some preliminary conclusions based on an analysis of the data.

Discussion

The results of this preliminary study allow for some preliminary conclusions. In the first place, the evaluation of the Career Education course clearly shows that providing training to pre-service teachers can be highly effective in assisting them in developing the knowledge and confidence to provide career development support to students. As a result of taking a credit course in career education, the pre-service teachers in this study indicated that, amongst other things: they felt confident to effectively assist students with their career development, they developed a clear understanding of how the theories of career planning influence practice, and they developed a clear understanding of how to get students involved in, and excited about, the importance of career planning.

In addition, it also appears that training pre-service teachers in career education positively impacts the career development of children and adolescents. As discussed earlier in this article, the worker of the 21st century requires the ability to engage in ongoing self-exploration, career exploration and career planning. As well, the worker of the 21st century requires the ability to manage change and maintain optimism while actively constructing and reconstructing her/his career/life. As a result of participating in the career education lesson plans, unit plans and school wide interventions, students reported that they learned a lot of valuable things about themselves, they learned a lot about career opportunities, they became more excited about their future, and they were excited to learn more about careers. These outcomes closely align with the kinds of competencies required to thrive in the 21st century of work.

Taken together, the preliminary results of this study indicate that providing training to pre-service teachers in career development theory and practice strongly benefits the career planning of children and adolescents in the K-12 educational system. Given the relatively small sample in this study, more research needs to be conducted to confirm these findings. As well, similar research needs to be conducted in other educational systems and regions to generalize these findings.

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Reimagining Partnerships: Using the Co-Teach Model to Prepare 21st Century Teachers

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Abstract

The purpose of this article is to describe the co-teaching model for the student teaching internship and its benefits for teacher candidates and the students with whom they work. The partnerships that have emerged from the implementation of co-teaching in eastern Washington state are explained. Co-teaching is in the process of being phased in by all four major universities in the region: Whitworth University, Washington State University, Eastern Washington University, and Gonzaga University. The universities and local districts partnered to form the Eastern Washington Co-teaching Leadership Team to plan and deliver training together. A study was conducted by the Eastern Washington Co-teaching Leadership Team in Spring of 2010 to determine mentor perceptions of the effectiveness of co-teaching for both students in the classroom and for teacher candidate training. The respondents supported co-teaching as an effective approach and offered recommendations for training mentors and teacher candidates more effectively in the future.

"Corey just threw a desk at me, and now I'm going into the bathroom to cry," I sobbed to the principal of the middle school where I was student teaching, as I dashed out of her office and into the bathroom, climbed onto the toilet seat and did just that. I had always known that I wanted to be a teacher, but my student teaching experience was changing my mind. It was nobody's fault, just the reality and the circumstances of the situation. My mentor teacher had emergency surgery, and the district did not have substitute teachers available. I was twenty-one and alone in the classroom with 43 eighth graders for the majority of my student teaching. I sometimes can't believe I made it out alive and am still in the profession today (J. Darragh, November 20, 2010).

Sink or Swim: Fostering Independence or Despair in the Traditional Student Teaching Model

While the experience above is definitely extreme, conversations with teachers often reveal similar student teaching stories of struggling to manage the complexities of the classroom environment. Regrettably, too often this "sink or swim" philosophy results in a negative experience for the teacher candidate, the mentor teacher and, most unfortunately, for the learners in the classroom.

Research shows that the best indicator for student academic achievement is the effectiveness of the teacher in the classroom (Darling-Hammond, 2003). Furthermore, it has been demonstrated that when attempting to implement a new teaching strategy, few teachers are able to do so without continuing assistance and collaboration. The most effective professional development programs offer, "30-100 hours spread out over 6-12 months" (Darling-Hammond &

Richardson, 2009, p. 49). This implies that ongoing support and mentoring leads to the effective implementation of teaching and management skills. However, following a "sink or swim" philosophy, mentors are often asked to leave the classroom and not be involved in any aspect of the learning experience, taking away the very structures a pre-service teacher needs to become an effective practitioner.

In addition to concerns with this traditional student teaching model for instruction, learning, and classroom management, further issues have emerged in finding quality mentor teachers and school placements for teacher candidates. In a high stakes testing environment, talented teachers and many school districts are often reluctant to offer their classrooms and leave their students due to the potential impact on student test scores and achievement. These concerns are valid. Research done by St. Cloud State University's College of Education in St. Cloud, Minnesota as a part of the Teacher Quality Enhancement project, found that students taught by teacher candidates in the traditional model do, in fact, perform lower than those taught by a professional teacher (St. Cloud State University College of Education, 2009).

It has become clear that the old model of student teaching needs to be rethought to provide support for teacher candidates and to foster student learning gains. The remainder of this paper will demonstrate how the co-teaching model for the student teaching internship addresses the needs of all involved in the classroom: mentor teacher, teacher candidate, and most importantly, the students.

Co-teaching: A Model to Prepare 21st Century Teacher Candidates

Co-teaching is defined as, "two teachers working together with groups of students and sharing the planning, organization, delivery and assessment of instruction as well as the physical space" (St. Cloud State University College of Education, 2010). In the co-teaching model, the teacher candidate and mentor teacher gradually shift the roles as primary teacher and planner, both remaining involved in all classroom activities throughout the internship. In doing so, both adults are utilized to assist student learning in a variety of ways.

The co-teaching model focuses on increased collaboration in planning and teaching throughout the student teaching internship and relies on two key components: specific co-teaching strategies and effective communication. The strategies associated with the co-teaching model were developed out of the special education field by Friend and Cook (1995). St. Cloud State University used the original co-teaching strategies outlined by Friend and Cook and modified them for the student teaching internship (St. Cloud State University College of Education, 2010). The seven strategies are defined as follows:

- ***One Teach, One Observe*** is defined as one teacher leading the lesson while the other watches specifically for either a teaching technique or student evidence.
- ***One Teach, One Assist*** works in a similar fashion to *One Teach, One Observe*, but the assistant's role is to intentionally work with specific students or in a predetermined role.
- ***Station Teaching*** is designed for both teachers to teach different but related content to the students in small groups in a rotating cycle**.**
- ***Parallel Teaching*** occurs when each co-teacher teaches the same lesson to a smaller group of students at the same time.
- ***Supplemental Teaching*** is designed for one teacher to instruct the students at grade level; the other teacher works with those who need extension or remediation.

- *Alternative or Differentiated Teaching* occurs when both teachers present the same information to a group of students, utilizing different instructional strategies to meet the same learning goals.
- *Team Teaching* is defined as both teachers equally participating in all aspects of the lesson.

Intentionally planning for each of these strategies is of critical importance for co-teaching to truly take place. Specific roles are identified for each teacher in the classroom in order to collect student evidence or to work with small groups of students to better meet their needs. The benefits of such a model span mentor teacher, teacher candidate and students alike (St. Cloud State University College of Education, 2009, Up Front Consulting, 2009). The students in the classroom are given more guidance and attention. The teacher candidate is able to collaboratively plan, observe, and receive immediate feedback on teaching. The mentor teacher not only has a second pair of hands, but also a colleague in planning, facilitating, assessing, and reflecting upon instruction.

A second critical aspect of the co-teaching model is effective communication skills between the mentor and teacher candidate (Gately & Gately, 2001; Keefe, Moore, & Duff, 2004; St. Cloud State University School of Education, 2009). Good communicators are able to collaborate and share ideas more effectively than those who struggle with expressing their thoughts and needs. Training through a variety of activities and tools to spur discussion on teaching styles, likes, dislikes, communication preferences, and so forth are done to create an open environment where good communication is the norm (St. Cloud State University College of Education, 2009).

Knowing the critical components for successful implementation of the co-teach model can greatly increase the student teaching internship for all involved, especially the students in the co-taught classroom. St. Cloud State University researched the impact of the co-teaching model on student learning. In a five year study comparing reading and math scores in elementary through high school classrooms on the Minnesota standardized test, they consistently found that students in a co-taught classroom not only outperformed those in a classroom with a traditional student teacher, but also outperformed those students in a classroom led by a single professional teacher (Bacharach, Heck & Dahlberg, 2010). As one administrator put it, "It's a value-added model" (S. Lawson, personal communication, June 22, 2009).

Co-teaching: A Model to Teach 21st Century Learners

Students in today's classrooms have never experienced a world without the internet. They are a new type of learner, used to having access to information at the click of a mouse or, with the case of smart phones, literally in their back pockets. As such, the 21st century learner has different skill sets and different learning needs from students of the past. More and more, educators are acknowledging the call for shifting from traditional teaching methods in order to meet the new learning needs of today's Web 2.0 students. For example, the 2008 National Council of Teachers of English (NCTE) Position Statement identifies that learners of the 21st century need to be able to, "Build relationships with others to pose and solve problems collaboratively and cross culturally," and to, "Design and share information for global communities to meet a variety of purposes" among others (National Council of Teachers of English, 2008). Similarly, Sanden and Darragh (2011) assert that education in general and technology integration in particular should, "Promote critical literacy opportunities such as

evaluating content and considering different points of view," and, "Provide opportunities for collaborating and sharing information in local and/or global settings" (p. 3).

The co-teaching model of the student teaching internship fosters these and other skills needed to teach the "digital natives" (Prensky, 2001) in today's classrooms. An emphasis on the importance and value of collaboration is modeled within the classroom as the mentor teacher and teacher candidate work together planning, implementing, and evaluating lessons. In addition, students are receiving information and perspectives from two teachers. They can hear and experience different points of view and different approaches to learning and witness how the sharing of ideas and working together can deepen the learning gained.

Reimagining Partnerships: One Region's Approach to Implementing Co-teaching

Cognizant of the need for change in the traditional student teaching model, universities in the state of Washington began investigating the co-teaching model. A two day workshop on co-teaching presented by Nancy Bacharach and Teresa Washut Heck from St. Cloud State University was offered at Seattle University in February of 2009. The universities in the eastern Washington region: Whitworth University, Washington State University (WSU), Eastern Washington University (EWU), and Gonzaga University, recognized the benefits to the model. A brief overview of the co-teaching model and the potential benefits were presented by university representatives to school district administrators and university faculty at *The Evidence Based Paradigm: A Discussion about New Directions for Teacher Preparation Conference* in April that same year. The school administrators in attendance encouraged the local universities to implement the co-teaching model in the student teaching internship to enhance student learning gains.

Regional universities in eastern Washington responded immediately by inviting Nancy Bacharach and Teresa Washut Heck for a Train-the-Trainer workshop at Whitworth University in June of 2009. This was essential training to begin phasing in the co-teaching model for student teaching internships during the 2009-2010 school year. In an effort to streamline training and implementation, as well as to deliver a uniform voice on the expectations for this model of student teaching, the universities and regional districts formed the Eastern Washington Co-teaching Leadership Team (EWCLT). The group is comprised of representatives from each of the above mentioned universities as well as the local school districts with whom they partner.

The EWCLT began their efforts in the fall of 2009 by training all regional field supervisors together in the co-teaching model and its strategies for instruction. Each university's teacher preparation program provided some level of training for teacher candidates and mentors in co-teaching strategies. For example, Whitworth's Master in Teaching program trained its mentors during their regularly scheduled mentor training sessions. Teacher candidates learned about co-teaching strategies in their general methods classes. Co-teaching partnerships at all university programs were encouraged to use the co-teaching approach to the student teaching internship, but they were not required to do so. Support for the implementation of co-teaching strategies continued throughout the internship with supervisors coaching and working with the mentor-teacher candidate teams.

Mentor Support for Co-teaching

At the end of the 2009-2010 school year, participating mentor teachers from Whitworth University and one school district were surveyed to determine their support of the co-teaching model and ways to improve future training. Mentor teachers were given a survey with statements about co-teaching and asked to respond with the ranking of (1) strongly disagree, (2) somewhat disagree, (3) somewhat agree, or (4) strongly agree. Forty-seven mentor teachers responded to the survey. Of the forty-seven, fourteen were primary teachers (K-3), eight were intermediate level teachers (grades 4-6), five were middle school teachers, and fourteen were high school teachers. Six respondents did not list the grade level at which they taught. Overall, the initial responses for the co-teaching model in the student teaching internship were very positive with benefits to students, teacher candidates, and classroom teachers all identified.

Benefit to Students in the Classroom

When asked on a survey if they felt the co-teaching model benefitted students in the classroom, all forty-seven mentor teacher respondents said they "somewhat" or "strongly" agreed. Trends in the responses included lower student/teacher ratios, increased opportunities to differentiate instruction, collaboration around student progress, and students experiencing different teaching styles and strategies. "When two teachers are in the room, children get more guidance and differentiated instruction. Two teachers can collaborate easily to best meet their students' needs," one mentor teacher commented. Another noted, "The ability to share curriculum, teaching practices, and student groupings allows for individual needs of students to be met more efficiently." Improved opportunities for differentiation were also observed. "Co-teaching has allowed for many more opportunities for differentiation and small group teaching" and, "It is a helpful way for the students to have two resources/models" were just a few of the comments received supporting this model.

Benefit to Teacher Candidate Training

Mentor teachers felt strongly about the benefits of the co-teaching model for teacher candidates as well. When asked if they felt co-teaching was an effective model to benefit a teacher-candidate's professional training, fifteen (32%) said they somewhat agreed and twenty-eight (59.6%) said they strongly agreed. Explanations centered on the benefits of increased collaboration and mentoring, immediate feedback for the teacher candidates, and more time allowed for trying out different teaching strategies. Mentor teachers explained, "Sharing the experience of teaching with another adult opens the door to so many possibilities- i.e. shared strengths, pre and post lesson evaluation, debriefing opportunities, different styles in the room," and, "It eases the teaching candidate into the classroom then lets the teaching candidate be seen as a person in charge." Another remarked, "There is always learning going on-from both sides," while others commented, "It was helpful for the mentor to be in the room and to work in tandem. She was able to observe much more, try new ideas with support, and work with smaller groups."

Four people (8.5%) said they somewhat disagreed that co-teaching is a valuable professional practice to benefit the teacher candidate's professional training. Trends in these four responses included feeling co-teaching didn't represent real-world teaching environments and the need for mentors and teacher candidates to be dedicated to the model. One mentor teacher said,

"It only works if the supervising teacher knows how to work it and is willing to be observed practicing the strategies. More time for the supervising teacher is needed." Other mentor teachers mentioned their belief that teacher candidates should have the experience of being alone in the classroom, "While co-teaching is beneficial to students, I feel the teacher candidates need to be on their own in situations to learn the 'down and dirty' aspects of teaching (time management, classroom management, etc.)." Similarly, another commented, "While a valuable model and practice, it does not accurately reflect the reality of the classroom. It is a better practice for scaffolding the candidate into independence."

It is the belief of the EWCLT that time for a teacher candidate to teach on his or her own is essential for mastering classroom management and instructional skills. This "solo teaching" time is still an honored practice with the co-teaching model. Solo teaching is encouraged after the teacher candidate has gained the skills and confidence necessary to teach after co-teaching for a period of time. At least two weeks of solo teaching, which may occur continuously or at various points throughout the internship, are encouraged by the EWCLT. To clarify this expectation and the rationale behind it, "solo teaching" was added to all written and presentation training materials for the 2010-2011 school year.

Recommendations for Training Mentors and Teacher Candidates

When analyzing the suggestions offered regarding how to improve the facilitation of the co-teach model of student teaching, several patterns emerged. Among the most often noted were providing more examples of what co-teaching looks like through videos or observation, integrating the training into the teacher preparation programs so candidates are prepared at the beginning of student teaching, and conducting the co-teach training sessions with the mentor and teacher candidate together. The EWCLT implemented these suggestions during the 2010-2011 school year with notable success.

Administrative Support for Co-Teaching

Administrative support at the district and building level is essential in transitioning to the co-teaching model. A shared vision of the changes in the student-teaching internship to enhance student learning and teacher training facilitates the collaboration and enhances partnerships in a variety of ways. For example, the MidValley Consortium for Teacher Education in Virginia, comprised of four universities and seven school districts, meets annually to discuss teacher preparation and provide shared trainings throughout the year. The twenty year old partnership has led to more effective teachers, a reduction of placement issues, and effective communication practices between universities and school districts (Moody, J., Brownscombe, S., Coffman, D. & Lemons, L., 2011).

Partner districts in the eastern Washington region have voiced strong support for the co-teaching model. Administrators were interviewed the winter of 2010-2011 regarding their opinions on the co-teaching model and what they found beneficial. When asked how co-teaching was a valuable professional practice that benefits student learning, Debra Clemens, Associate Superintendent of Cheney Public Schools responded:

> Co-teaching is a valuable professional practice that benefits student learning throughout our organization because it supports the model of two adults working collaboratively in the classroom to best meet the instructional level of the students enrolled in the class. In

> virtually all of our classrooms students have a range of ability levels; the goal of our teachers is to provide focused instruction targeted to the student's learning edge. Throughout our organization I have witnessed para-educators and teachers co-teaching; inclusion (special education and general education) teachers co-teaching, Title I and regular education teachers co-teaching, and student teachers and mentor teachers co-teaching. Co-teaching is a practice we fully embrace because we recognize that when adults work together to best serve students there is a stronger chance that students will develop the knowledge and skills needed to be successful. (Personal communication, January 19, 2011)

The administrators were also asked if they felt co-teaching was a valuable professional practice to benefit the teacher candidate's training. They collectively voiced that co-teaching was more effective than the traditional model of solo-teaching for a variety of reasons. Jan Beauchamp, Assistant Superintendent for Academic Affairs of East Valley School District #361 said, "The opportunity to work side-by side with an experienced teacher is much more valuable than the trial and error that often occurs when teacher candidates are on their own. The modeling and coaching consistently provided by the mentor teacher creates a valuable learning experience" (Personal communication, December 1, 2010). In addition, the administrators noted that co-teaching effectively taught teacher candidates how to work effectively with other adults and colleagues in the classroom, modeling the level of collaboration expected of today's educators.

Conclusion

One cannot help but wonder how the student teaching experience illustrated in the opening quote would have been different if the teacher candidate had participated in the co-teach model of student teaching. It is possible, of course, that Corey still would have thrown that chair at the teacher candidate. However, having had the opportunity to discuss with the mentor teacher what had happened, why, and what could have been done differently, may have led to fewer tears and lessened anxiety regarding classroom management and led to more opportunities for students to learn that semester.

Co-teaching as a model for the student teaching internship is a win-win-win for all involved: the teacher candidate, students, and mentor. The advantages of co-teaching voiced by the mentors and administrators in the eastern Washington region serve to exemplify the needed change in the student teaching internship for better training, service to the students, and enhanced partnerships between universities and districts. The co-teach model in general, and the Eastern Washington Co-teaching Leadership Team in particular, have provided an opportunity to reimagine traditional university and district partnerships. The potential of the co-teach model may best be expressed by one mentor teacher in the exit survey, "What a benefit to have two adults teaching together in one class! So lucky. Great things happen."

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School-University Collaboration: Perspectives on a Hybrid Space for Literacy Learning

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Abstract

This paper examines the ongoing collaboration between a teacher certification literacy course and a local elementary school. Teacher candidates, elementary students, classroom teachers, and university instructors all collaborate to implement a literacy methods course, creating a hybrid space for learning in which university and school personnel work together to the benefit of all participants. The background of this collaboration is described, and literacy learning is explored from the perspective of each participant group. Themes from these perspectives suggest that structured interactions between teacher candidates and elementary students help bridge the gap between literacy concepts and classroom practice, and that participating classroom teachers and university instructors, as well as teacher candidates, learn from the ongoing examination of instructional practice.

Six years ago a teacher certification literacy methods course moved from its university campus location to a K-6 elementary school located nearby. The course instructors hoped that the move would provide increased opportunities for teacher candidates to connect course content to work with children in classroom settings. The school principal and teachers who welcomed the instructors and teacher candidates hoped that their students would benefit from tutoring by the "teacher buddies." We all hoped that collaboration between university instructors and classroom teachers would provide meaningful professional development opportunities for all.

We had many questions about this project. We were especially curious about whether the benefits of the collaboration would meet our expectations. Our questions were:

1. Does the collaboration between a university and an elementary school support the learning of teacher candidates? If so, how?
2. Does the collaboration between a university and an elementary school support the learning of students at the school? If so, how?
3. Does the collaboration between a university and an elementary school contribute to the learning of both classroom teachers and university instructors?

In this paper we explore the perspectives of teacher candidates, students, teachers, and instructors on these three questions. We also consider themes and implications that emerge from our exploration of these perspectives on learning.

Background

This collaboration takes place in the context of a two-quarter course called "Learning, Teaching and Assessing in Reading, Writing and Communication." It is the only literacy course required for teacher candidates enrolled in the University of Washington Bothell's post-baccalaureate K-8 teacher certification program. It occurs during fall and winter quarters, just prior to full time student teaching in the spring, and meets once a week for four academic hours. The course is taught by two tenure-line professors, and covers fundamental literacy topics. There are two K-8 cohorts each year, with teacher candidates taking all of their certification classes as members of a cohort. Teacher candidates in this program have completed their baccalaureate degrees and range in age from their mid-twenties to their mid-fifties.

Juanita Elementary School is in the Lake Washington School District, a suburban district neighboring the city of Seattle. This district is moderately socioeconomically and linguistically diverse, with 36% of students qualifying for free or reduced-priced meals and 13% of students classified as transitional bilingual. This K-6 school has had principals who are supportive of the university teacher certification program. The school has hired several graduates, and principals and teachers serve on various university committees. The principal supports the school-university collaboration by providing a classroom for the literacy course two mornings a week. Approximately 60 teacher candidates, six classroom teachers, two university professors and 150 students have been a part of this experience each year since it began.

Teacher candidates in the literacy methods course meet with Juanita Elementary student "buddies" from three different grade levels (kindergarten, primary, intermediate) over two quarters. Each of the teacher candidates is assigned a student buddy with whom they meet for 30-minute sessions over three to eight weeks as part of scheduled course sessions. During the time with their buddies, teacher candidates administer assessments they have been taught in class and provide instruction based on these assessments. This work is linked to course concepts and is discussed in both whole class and small group settings.

Juanita Elementary teachers provide background on students and share their instructional practices with the teacher candidates. In turn, they receive reports from teacher candidates on their work with their student buddies. Teachers often provide feedback to the course instructors on the validity of the teacher candidates' reports. Overall, university instructors and school personnel work together to provide a rich learning context for teacher candidates to learn literacy concepts in practice.

Theoretical Framework

There has long been a recognition of the disconnect between university teacher education programs and practitioner work in schools (Bullough, Draper, Smith & Burrell, 2004; Zeichner, 2007). This recognition has prompted some institutions to create "hybrid spaces" in which university and school personnel work together to develop sites where academic (university) knowledge is equally valued and utilized along with practitioner (school) knowledge to the benefit of all participants (Zeichner, 2010). This is what we have been working to create at Juanita Elementary School.

For teacher certification candidates, participation in a hybrid space acknowledges the situated nature of teaching (Putnam & Borko, 2000; Smith & Shephard, 1988) and that the variables of instruction change with every context and every child. Duffy (2004) has made the

case that adaptive teachers—teachers who can respond to changing environments and individual students—are needed to successfully meet the complex demands of 21st century literacy instruction. Recent research on exemplary programs in teacher education suggests that programs where field experiences are carefully structured, matched to coursework, and closely monitored help teacher candidates develop the skills of adaptive teaching and an ability to carry out complex instructional practice (Darling-Hammond, Hammerness, Grossman, Rust, & Shulman, 2005).

Students may also benefit from the creation of a hybrid space. A number of studies have suggested positive benefits for students participating in structured tutoring programs (Juel, 1996; Lysacker, McCormick, & Brunette, 2004; Wasik & Slavin, 1993). In tutoring situations, students can benefit both academically and socially by interacting with knowledgeable and caring adult tutors. In this situation, the tutoring occurs in the context of students' own classrooms and the tutoring they receive may be linked to their current coursework.

Finally, the creation of a hybrid space, one that recognizes the knowledge and skills equally brought by university instructors and practicing classroom teachers, should extend learning through the formation of a learning community, a group of educators focused on improving student learning in literacy and the continuing intellectual development of participants (Grossman, Wineburg, & Woolworth, 2001). Learning communities offer a number of elements of effective professional development including ongoing collaboration, an open exchange of ideas, and frequent connections to classroom practice (Darling-Hammond & McLaughlin, 1996). Professional development occurring in the context of a learning community draws strength from the range of participants involved, including novice and experienced teachers, teacher educators, and students (Darling-Hammond, Hammerness, Grossman, Rust, & Shulman, 2005).

To examine perspectives on the learning of teacher candidates, students, and classroom teachers/university instructors participating in the hybrid space, data were collected from all groups of participants. Data sources, gathered over two academic years, include: teacher candidate written reflections, formal written projects, and written responses to course readings; instructor field notes of teacher candidate-student buddy interactions and conversations with teachers; student responses; teacher, principal, and instructor written reflections on the hybrid-space experience across both quarters of the course. Data analysis involved a two-part qualitative process of first sorting and coding data to identify a set of emerging themes (Miles & Huberman, 1994) and then examining the viewpoints of individual participants to highlight themes across experiences. This process resulted in a set of emerging themes in relation to learning and the hybrid space from the perspectives of teacher candidates, students, and teachers. In the following discussion we use the voices of participants to highlight these themes.

Discussion

Perspectives on the Learning of Teacher Candidates

Most of the teacher candidates reported that their knowledge of literacy concepts deepened when they made connections between literacy concepts and classroom practice and when they developed an understanding of student buddies as individual learners. As noted earlier, interactions between teacher candidates and buddies focused on literacy assessment followed by instruction. During four sessions with a kindergarten class, for example, each teacher candidate implemented a "getting to know you" activity with their kindergarten buddy,

administered an emergent literacy profile to assess emerging literacy skills, and then taught a lesson based on the assessment. This process was designed to allow teacher candidates to make connections between the stages of early reading development (Ehri, 1995) and the skills of an emergent reader. Shelley, a kindergarten teacher participating in the hybrid space, commented on these connections:

> Multiple one-on-one assessments and activities seemed an ideal way for these "teacher buddies" to interweave educational theory with instructional practice in guiding the reading process. It is one thing to read about the road to reading; it is quite another to walk that road with a kindergarten child who is just making sense of the landmarks.

Teacher candidates demonstrated their understanding of early reading development when they reported on the assessment and instruction activities done with their buddies. However, in addition to demonstrating knowledge of literacy concepts, teacher candidates showed an awareness of specific aspects of emergent reading in relation to their student buddies' reading development. Colleen (teacher candidate and student names are pseudonyms), reflecting on what she had learned about her kindergarten student buddy's emergent reading, observed, "He recognizes his letters and knows the sound each letter makes. His story prediction and comprehension was great, but he had a hard time with rhyming. I was surprised by this, since he had such a good grasp of alphabetic sounds." This example shows how Colleen developed knowledge of the various dimensions of early reading and an understanding of the uneven nature of development when she applied literacy concepts to her kindergarten buddy.

When working with intermediate-grade student buddies, teacher candidates' written reports showed a similar trend of developing literacy knowledge by connecting course concepts to specific details discovered through interactions with student buddies. With these older students, teacher candidates assessed literacy skills through a series of informal conferences focused on aspects of reading including word identification, fluency, comprehension, vocabulary, and motivation. Mandy, a teacher candidate reflecting on her conferences with Peter, a fifth-grade student, considered the ways this series of interactions had impacted her understanding of the reading process:

> It was quite interesting to first gauge the overall abilities of the student as a reader and then closely examine each individual skill in order to determine the areas in which the student can continue to grow and develop as a reader. I am thankful to now possess the knowledge and ability to look at reading not only as one, over-arching process, but rather as a sum of its parts and interrelated abilities, concepts, and processes of word identification, comprehension, vocabulary, fluency, and ownership.

Due in part to her work with her buddy, Mandy no longer saw reading as a single unitary concept, but rather as a complex inter-relationship between multiple dimensions.

Interaction with student buddies provided opportunities to apply literacy concepts to authentic learning situations. In this hybrid space the literate environments in each of the classrooms were also discussed and classroom teachers provided information about children and curriculum. In some cases, classroom teachers provided advice to teacher candidates as they planned lessons for their buddies. For some teacher candidates these activities went according to plan, while for others the interaction was full of surprises. Either way, teacher candidates engaged in the assessment-instruction cycle and wrote about the experience in a final project report. Shelley, the kindergarten teacher, reflected on the reports teacher candidates generated and shared with both instructors and classroom teachers. She noted, "Reports written by teacher candidates reflect not only a growing perceptiveness of each child's strengths and abilities but

also a deepening awareness of next instructional steps. The teacher candidates are exploring the critical alignment between assessment, instruction, and learning."

There were many indications that teacher candidates generally relished getting to know their buddies as literacy learners and as individual children, with unique backgrounds, interests and skills. One indication was that the candidates' personal interest and care for their buddies translated into a tangible sense of enthusiasm for their work at the school. Paul, the principal of Juanita Elementary, reflected on this heightened level of energy, writing, "For me the beauty of the collaboration lies in the power of seeing eager teacher candidates flooding out of the university literacy class and streaming down the hallways in anticipation of meeting their K-6 buddies." Most of the teacher candidates developed personal relationships with their buddies that created a tangible reason for them to learn and apply course concepts. Many of them reported that they spent a great deal of time planning their assessments and instruction. Coming to know their students as individuals provided teacher candidates the opportunity to connect course content in a situated way to their buddies' skills and proclivities, promoting engagement.

The focus on the individual learner also appeared to help teacher candidates reflect more deeply on students' strengths and needs. Abby, a teacher candidate who had conducted a series of informal reading conferences with her fifth grade buddy Amid, acknowledged that each time she met with him she learned more about his literacy skills. Reflecting on her increasing knowledge of Amid as a learner, she wrote,

> Each time we met I saw something new. On our first visit I was struck by Amid's fluency and word identification. My initial thought was that I had little to offer him. But, as we talked about the text I could see comprehension as an issue…By our third visit I was able to confirm my suspicions. Despite his fluency and word identification skill, comprehension was not at the same level and therefore would be the focus of my lesson.

Working with children one-on-one allowed teacher candidates to focus on individual student learning in a way seldom possible in traditional field placements. With no need to tend to whole-group instruction or classroom management, they were able to pay more attention to the individual learner, developing through the series of interactions a deeper understanding of both their student buddies and related literacy concepts.

Overall, teacher candidates and classroom teachers agreed that participation in this hybrid space supported the learning of teacher candidates by connecting conceptual knowledge to individual students in classroom contexts. These perspectives suggest that the hybrid space promoted the development of a more complex understanding of literacy concepts on the part of teacher candidates than would have been possible if our course were solely located on the university campus.

Perspectives on Student Learning

Classroom teachers and students reported that the hybrid space promoted literacy learning as well as positive relationships between adults and students. Working with a teacher candidate buddy provided students with individualized time and attention from an adult that in our observations frequently resulted in an emotional bond that was motivating to both of them. Paul, the Juanita Elementary principal, reflecting on the student-teacher candidate buddy interactions, wrote,

> The memory is completed by the lasting vision of the faces of the many children who are delighted that this special adult is coming to see them. The smiles on the faces and the

> powerful connections they make that are both cognitive and relational, make this complex collaboration seem both simple and perfect.

Julie, a kindergarten teacher, discussed these interactions with her kindergarten class, noting that in a brainstorming session her students reflected positively on their experiences with their teacher buddies both in terms of relationships and literacy learning. She noted that even several months later, students generated comments such as, "They helped us read." "They read with us." "They were friendly." "They made us feel happy. "They made us laugh." "They made us feel special." "We colored in our journal together." "I hope they become a nice teacher!"

Intermediate-grade students also had favorable reactions to their interactions with teacher candidate buddies, expressing an awareness of the learning support these experiences provided. Teacher candidates introduced themselves to their sixth-grade buddies by conducting an informal writing conference in which both teacher candidate and student buddy shared a draft of a recent written project. Carol, the classroom teacher, noticed that her students were working on a writing project similar to the one that teacher candidates were sharing, allowing her students to quickly associate with their teacher buddies. She noted that these interactions became even more productive, observing, "During the second session my students reported back to me that they enjoyed the instant positive feedback, their teacher buddies had helped with lots of ideas, and had helped turn brainstormed ideas into phrases for poetry; some even found closure to the project with dedicated revision assistance."

Sometimes the positive experience of these interactions appeared to spread, over time, into the general classroom setting. For example, after several sessions Carol noted that with their teacher candidate buddies her students were able to experience "what the theory tell us a classroom should look and feel like – everyone is engaged in productive work that has meaning for them." Carol continued,

> This experience was repeated on several more occasions and I noticed my students became more adept at recreating this sense of productivity during group and independent work time. Literature circles, for example, were far more on task, with my students demonstrating a deeper understanding of their books as evidenced by the level of questioning they utilized in the groups.

These sixth grade students also shared what they had learned with their teacher candidate buddies, providing feedback on the interactions and suggesting ways the adults might improve their teaching skills. Describing a discussion she had with her students, Carol noted,

> Some of the feedback suggested that the teacher candidates should speak slowly and clearly and also moderate their vocabulary. They also wanted more eye contact. At the same time, my students agreed that this was a great social opportunity; they enjoyed getting to know their teacher buddies, they made connections in the work they were both doing, and they found they had lots in common with each other.

Both students and classroom teachers believed that the buddy interactions had a positive impact, both academically and socially. The hybrid space seemed to help literacy learning become more interesting and engaging to students, not just during interactions with teacher candidate buddies but also across the school day.

Teacher and Instructor Learning

Classroom teachers and university instructors both said that they benefited from the connections made by working together to support the learning experiences of teacher candidates and students. For classroom teachers, participation in the hybrid space provided the opportunity to make connections between daily classroom practice and underlying literacy concepts. Teacher candidate questions about particular students or activities, for example, prompted teachers to think about the rationale behind their instructional actions. Classroom teachers were also able to reflect on their knowledge of individual students based on feedback provided by teacher candidates. Considering this type of feedback on her kindergarten students' emergent reading, Julie reflected,

> I have received interesting perspectives on my students—some on target and some I didn't agree with—and excellent food for thought. Getting feedback from teacher candidates regarding my pupils has sometimes even sent me back to my textbooks! It has given me a chance to reflect on my students as individual learners. Having the chance for one-on-one time with them is an opportunity I envy. As a teacher in a bustling classroom of five and six year olds, I cherish the small snippets of time I am able to garner for each individual.

Shelley, the other kindergarten teacher, reflecting on the relationships between her students and their teacher candidate buddies, wrote:

> Teacher buddy visits have been more than an academic exercise in effective teaching. Genuinely interested in establishing a nurturing relationship, they have quickly established rapport with their kindergarten buddies. Recently, as I read each teacher candidate's report, I was amazed to learn things about my students that were never shared in the classroom! For example, one student told her teacher buddy that she had a baby brother who had died years ago. Sharing this intimacy with her buddy reflected the trusting relationship created within a very short time.

Classroom teachers had the opportunity to learn more about their students instructionally and personally and also to make connections between classroom practice and underlying literacy concepts. For Nancy and Tony, the university instructors, learning was supported through connections in the opposite direction—from key literacy concepts to the realities of classroom practice. They realized that they learned a great deal as instructors, having to substantially modify their syllabus to incorporate the hybrid space and change course readings and projects to better match this learning opportunity. Nancy wrote:

> In dropping some content to make room for interactions with students, we had to decide what is most important to teach. The resulting tension between breadth and depth caused us to think about our values and what we ultimately want our teacher candidates to learn from the course.

Tony added:

> We have also learned the limitations of theory overviews and in-class discussions, which only develop teacher candidates' understanding to a certain level. Beyond this we must always consider ways to scaffold instructional approaches and pedagogical techniques necessary for our candidates to work successfully with their buddies, even if time is short. Instead of introducing literacy concepts and then hoping students will successfully apply these concepts in the field, we have realized we must dedicate class time to scaffolding concepts that will be immediately applied to learning situations with real students.

In these situations, the Juanita teachers helped guide the practice of the university instructors. For example, during year two of the collaboration, Carol helped Nancy learn that she had not provided enough scaffolding for teacher candidates who were creating questions for buddy discussions around a classroom novel.

Work in the hybrid space appeared to keep the university instructors grounded in the realities of teaching and learning in school. Nancy said, "Each week we are reminded that our course is about children and their learning when we see and hear children all around us." This theme ran across all participants when examining perspectives on the ways in which learning was supported by the creation and utilization of this hybrid space. Essential literacy concepts were made more real when connected to individual students in classroom contexts and when the opportunity was provided for feedback, discussion and reflection.

Implications and Conclusion

This paper examined the perspectives on learning that occurred in a hybrid space created by school-university collaboration. Our exploration of teacher candidate, student, teacher, and instructor perspectives suggests positive benefits to all participants in the collaboration, with several prominent themes emerging from the data.

First, collaboration appears to lead to the development of literacy knowledge grounded in practice. The hybrid space fosters a situation in which teachers construct their understandings and transform content in ways that meet the learning needs of their students. Research suggests that this active and dual approach to content and student learning encourages thoughtful teacher decision-making (Garet et al., 2001; Lytle & Cochran-Smith, 1992; Richardson & Placier, 2001). It also may make possible the development of pedagogical content knowledge, the "… knowledge base of teaching that lies at the intersection of content and pedagogy" (Shulman, 1987, p. 15). The ways that interactions are structured in this hybrid space plays a role in the way that the various participants are able to learn from the experience. The teacher candidates take part in a course that tightly links course content and assignments with student tutoring. The classroom teachers receive feedback on their students from the teacher candidates and discuss coursework with the university instructors. The university instructors learn from the classroom teachers and receive feedback on what their students are learning from the project reports. The application of course content to individual students in this structured setting appears to provide teacher candidates, classroom teachers, and university instructors with the opportunity to develop a more complex understanding of literacy development and instruction.

Second, working with children one-on-one allows teacher candidates to examine individual student learning. This work supports the development of a teaching-learning framework among teacher candidates that emphasizes relational thinking focused on facilitating constructive learning processes for students (Oser & Baeriswyl, 2001). Additionally, one-on-one interactions in the hybrid space promote an emphasis on the characteristics of highly qualified teachers, including placing a high value on students' identities, connecting learning to students' lives, using active learning strategies, and caring about and respecting students as individuals (Nieto, 2005). Like many tutoring experiences connected to teacher education courses (e.g. Lysaker, McCormick, & Brunett, 2004; Nierstheimer, Hopkins, Dillon, & Schmitt, 2002) it is tightly connected to course content. However, unlike many tutoring situations that occur in reading labs, the class practicum is conducted in the school itself as part of a whole class activity. The collaborative relationship seems to support teacher candidates in appreciating instructional

contexts for their buddies.

Finally, the hybrid space being created between Juanita Elementary and the University of Washington Bothell provides for a form of professional development that is ongoing, connected to classroom practice, and focused on student learning. Unlike the traditional model of single-session professional development workshops, this long-term connection between school and university makes possible the kind of sustained interaction that is essential to innovative and meaningful professional development (Darling-Hammond, 2009). The grounding of literacy theory in classroom practice seems to deepen the learning of teacher candidates, while at the same time university instructors and collaborating classroom teachers are developing a more complex understanding of the interplay of situated literacy concepts and pedagogical strategies. In this collaboration, classroom teachers and university instructors join in asking questions about students and instruction. The promotion of an inquiry stance within this hybrid space appears to enable teachers to "learn in and from practice" (Ball & Cohen, 1999, p.10), no matter at what level they teach or at what stage they are in their careers. We believe that such an inquiry stance is an essential trait of skilled teachers, especially during this current time of increasing reading and writing demands and evolving definitions of literacy.

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Constructivism in Practice: The Potential of Ubiquitous, "Low-Tech" Audio Devices for Literacy Development in the 21st Century

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Abstract

In this study, four graduate level preservice teachers used inexpensive, MP3 players pre-loaded with audiobooks with the objective of increasing the reading fluency and digital literacy of elementary school children. The data collected included preintervention surveys, pre/post oral reading fluency scores, a log of daily listening experiences, and preservice teacher journals. The findings indicated that student-participants' oral reading fluency scores improved along with the students' confidence in reading. Additionally, both the preservice teachers, and the student-participants reported an increased awareness of how technology can be used for literacy development and enjoyment, suggesting an enhancement of digital knowledge and skills.

The 21st century skills agenda is the latest iteration of recommendations from government, business, and educator consortia, outlining basic competencies such as critical thinking and problem solving, communication and collaboration, creativity and innovation, etc., (Partnership for 21st Century Skills, 2000). Some of this framework is familiar to readers of previous reports from as far back as the *Nation at Risk* (U.S. DOE, 1983), or Scans 2000 (U.S. Dept. of Labor, 1991). Unlike the previous skills agendas, the current framework clearly identifies the need for competencies related to information, communication, and technology (ICT) literacy. Demonstrating literacy in ICT means being able to: (a) Use technology as a tool to research, organize, evaluate and communicate information, (b) Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy, and (c) Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies (Partnership for 21st Century Skills, 2000).

The cultivation of the aforementioned 21st century technology skills should be informed by past research on the so-called "second digital divide", referring to disparities in online resources and expertise, to accomplish skill development. The "second digital divide" departs from the dichotomous view of the "first digital divide"–having access or not having access to the Internet–and broadens the concept to include disparities in type of use, extent of use, and "the additional resources that allow people to use technology well" (Hargittai, 2001; U.S. Dept. of Commerce, 1983; Warschauer, 2002, p. 4).

This broader view of digital inequity addresses the different experiences students have using digital technologies based on their race, socio-economic status, ability, school location, teacher or other mediating social factors (i.e. friends, family, others). In consideration of new skills and new literacies that all students need for successful lives in this century, teachers are challenged with the need to incorporate various technologies into their classrooms, to further support students' interests and prepare them for their futures, even as school budgets get reduced.

The current study addresses the challenge of resource inequity and ICT skill disparity by

using low-cost, but utilitarian MP3 audio devices with the goal of developing reading fluency in elementary school children. Virtually all students have access to an MP3 device, or other audio player. Between 2004 and 2009 ownership of MP3 players in the 8-18 year old age group has exploded from 18% to 76% and if CD players in homes are included, virtually *all* students have access to some type of audio player (Rideout, Foehr, & Roberts, 2010).

The position here is that re-thinking the uses of this ubiquitous device can foster authentic and personalized learning–two features of 21st century learning–and promote multiple literacies. Students (and their teachers) are not only exposed to more literature resources, but by locating free audiobooks on the Internet, downloading them, transferring those files to the audio device, and sharing and managing multiple files over time, they are developing their technological acumen in the digital age.

Background

Multiple Literacies in the 21st Century

When one typically thinks of literacy, a person's ability to read and write a printed format may be what first comes to mind. However, according to the International Reading Association (2002) "traditional definitions of reading, writing, and viewing, and traditional definitions of best practice instruction–derived from a long tradition of book and other print media–will be insufficient" (p. 3). The dynamic communication technologies of the information age are offering new ways to engage with literacy, "heretofore unseen in the history of literacy" (Tyner, 2003, p. 374). Since modern contexts indicate a shift toward more technological and multimedia forms of communication, the word literacy encompasses a massive amount of knowledge that one must possess in order to be technically termed as "literate." Sensenbaugh (1990) defines literacy as, "more than just being able to read and write, [literacy] is the ability to comprehend, interpret, analyze, respond, and interact with the growing variety of complex sources of information" (para. 2). In our digital age, acquiring these skills means developing literacy in information and communication technology (ICT), which includes the ability to locate resources, and use them in our everyday lives (Bawden, 2001).

In the view of Labbo (2006) "every teacher who lives through technological innovations needs to be prepared to negotiate the multiple realities that shape pedagogical decision-making" (p. 205). Such expectations put a major responsibility on teachers to understand and incorporate the acquisition of multiple literacies using various teaching practices. If our youth are to be prepared to be active and viable citizens of the future they must be able to make meaning from a variety of sources and be able to communicate that knowledge to a variety of audiences. In youth culture, engaging with digital media, including that which is both consumed and created by students, is a major part of life (Rideout, Foehr, & Roberts, 2010).

While some researchers have called for a major overhaul of fundamental teacher beliefs towards instructional strategies to develop literacy fluencies for most youth (Graf, as cited in Sensenbaugh, 1990), other researchers have noted that educators often struggle to integrate the new literacies into their curricula. Teachers perceive limited access to hardware and software, and many feel inadequately prepared to use technology regularly in the classroom (Tierney, Bond, & Bresler, 2006). Some teachers question the legitimacy of using the Internet or other digital tools as literacy activities while literacy standards that are tested emphasize more traditional understanding and application of reading and writing. The current project assumes

that educators have a responsibility to understand (and use) new technologies on behalf of students and that digital fluencies can be developed if educators change their fundamental beliefs toward these alternatives.

Reading and Listening in Literacy Development

Books on tape are often used in classrooms as resources for literacy development, especially at the elementary school level. In one of the earliest examples of research on this practice, Chomsky (1978) demonstrated how listening to stories on tape players broke down students' anxiety about reading. Interesting stories in an audio format were provided for students to listen to repeatedly as they followed along with the text. The repetition of listening as well as following along with the text became a memorization method and not only increased reading fluency scores, but built self-confidence in the students so that later they picked out their own books to read. Books on tape gave students "an access to reading that they had not managed to provide for themselves earlier in the game" (Chomsky, 1978, p. 296). In Chomsky's article, one of the salient features was the high number of repetitions for each read-a-long.

For many years, combining reading and listening has proven to be an effective strategy to improve reading performance, but not without contextual considerations. McMahon (1983) conducted studies with first and third graders as they read along while listening, to determine the children's ability to process information from more than one source at a time. Students performed reasonably well at a rate of 35% faster than their own reading rate, but performance (in detecting discrepancies between the written text and the voice on tape) was found to be associated with grade level.

The rate at which an audio story is played may also be a factor in comprehension as Neville (1975) discovered in studies with middle school children. The best results for coordination of reading and listening were found when the rate of the audiotape matched the child's own oral reading rate. Given three rates of aural reading, comprehension decreased as the rate increased in groups that listened to text while reading, but an interesting finding was that for groups that had no text to read, comprehension remained the same across all three rates. Not only should these results call into question the benefit of tapes that that are available commercially, which typically are produced at reading rates above grade levels, but the findings may offer promise for literacy programs using a "listening only" protocol.

The act of following the text while listening to an audiobook has shown benefits beyond improved test scores (Byrom, 1998). Byrom noted that the modeling of good reading can motivate and engage students with its intonation and nuance. For example, students felt that they can read books above their level, or "just like the rest of the class", because they can avoid the burden of decoding text. Audiobooks that have better "listenability" attract students for a variety of reasons, and can be preferred over silent reading in the regular literacy time period (Toppings, 1996).

As digital technologies advance, the use of tape players and even CDs is becoming obsolete. With the invention and standardization of the MP3 format in the mid-1990s (Fraunhofer IIS, 2010), audio files have become more accessible and convenient to use, providing alternatives to tapes and CDs for students and their families. Regarding literacy development, one of the most appealing aspects of MP3 players for students is the exposure to excellent reading styles by "readers" in a classroom setting, e.g., for English language learners (Patten, 2007), or at home where many families can't find time to read together (Vary and

Kervin, 2007). Skouge, Rao, and Boisvert (2007) remarked that the digital format can "provide models for parents of how to read aloud with their own children" (p. 8). These researchers also believe that audiobooks are ideal for diverse learners and provide a resource for immigrant families because books are costly and sometimes difficult to obtain.

Considering the multiple benefits of using MP3 audiobooks helped us shape the purpose of this study: (a) to investigate how elementary public school students might benefit from the availability and use of free audiobooks obtained from various sources on the Internet, focusing in particular on improving reading fluency and developing their ICT skills, and (b) to develop pre-service teachers' competence to use digital tools to develop literacy, promoting an understanding of how using contemporary digital devices and formats can expand the possibilities for teachers. Just as students are no longer confined to learning via reading the printed text of a book, teachers no longer need to be restricted to teaching within such limitations. Thus, we aimed to broaden teachers' conceptions of literacy from reading a book to include 'listening' to a book, helping them enrich and extend the public school curriculum beyond the classroom walls.

Methodology

The research team consisted of a professor of education and four graduate level pre-service teachers (also referred to as student-teachers) in an action research course. Action research was particularly well-suited as a research methodology because of its practical applications, and its exploratory and reflexive nature. For example, Mills (2011) provides a good working definition for our purposes: Action research is a systematic inquiry that gathers information "with the goals of gaining insight, developing reflective practice, effecting positive changes in the school environment (and on educational practices in general) and improving student outcomes and the lives of those involved" (p. 5). Carr and Kemmis (1986) note that action research is well suited in "reflexive" situations, i.e. the participants and situations have the capacity to change as the knowledge and thinking changes, thus creating a new circumstance. This was an important consideration because the preservice teachers had to work closely with their individual cooperating teachers' established literacy program, and they adapted their methods according to the student- participants' experiences and the individual classroom circumstances.

Each preservice teacher recruited up to five student-participants at the elementary schools where he or she was placed for student-teaching. The elementary students were selected in consultation with the classroom cooperating teachers. Different criteria were used at each school because the circumstances varied, but the purposive selection of struggling readers was a project objective. The study occurred in the second half of the year, so all student-participants had experienced the regular reading program since the beginning of the school year.

Various data sources were used to address the two research questions. The first research question addressed the benefit to the student-participants, documenting their gain or loss in reading fluency and the development of ICT skills. To answer this question, we conducted pre/post tests of their oral reading fluency and surveyed both students and parents on the availability of the Internet in the home, and their prior experience with using audiobooks in the MP3 format. Journals kept by the student-teachers recorded how the student-participants were developing their digital skills as their projects unfolded.

The second research question addressed how this project would increase the competence of preservice teachers to use digital tools for literacy development. To answer this question, daily

logs were used by the preservice teachers to document the frequency and patterns of the student-participants using the MP3 players. The journals (mentioned above) were used by the preservice teachers to capture the instructional strategies they employed during the project, their reflections and their 'slice of life' observations of the student-participant experiences.

Each preservice teacher was given five SanDisk Sansa Clip Plus MP3 players to distribute to elementary students. The Sandisk Sansa Clip Plus was specifically chosen because of its low cost ($40) and numerous features (4 GB, voice recorder, expandable storage, AM/FM radio). The student-teachers loaded the devices with several audiobooks from the public domain or the public library, and helped the student-participants navigate through the player. Audiobooks from the public domain were targeted because they cost nothing and could be shared without violating copyrights.

The team developed a website to provide resource links to websites that host free audiobooks and to provide tutorials on using the MP3 players. For the first several weeks, the student-teachers downloaded the audiobooks for the students and focused on keeping the students comfortable with the new project and resolving any difficulties. The student-teachers showed the student-participants how to use the website they created and, at the appropriate time, they taught the students how to download audiobooks from the Internet themselves. Each student-teacher had different strategies on how to teach about finding books and downloading them. Student-participants were asked to listen to any audiobook for at least 15 minutes a day on a voluntary schedule, which could occur at school or at home depending on the circumstances.

Coached to take the reflexive approach of action research, student-teachers adapted their methods according to boundaries set by their cooperating teachers, and their evolving interactions with their student-participants. Over the course of the project, the student-teachers met with their supervising professor for 2 hours each week to clarify procedures, compare methods and share concerns. Since each project was unfolding in distinctly different ways, the group determined that the most consistent measure was the pre/post reading scores over the length of the project period. Each student-teacher provided a summary report of his/her experience at the end of the project. The summary reports provided some details and reflections based on the daily or weekly journals. The following section draws from those reports to describe 'slice of life' highlights of each student-teacher's unique approach in his /her negotiated classroom circumstance.

Student-Teacher Stories

Jessica's Student-Participants and Context

Jessica worked with five fourth-grade students, two girls and three boys, identified as emerging readers by their previous scores on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). The students were struggling in reading even with extra support and intervention practices in place each day. Jessica selected six audiobooks that she downloaded from the public library system. She chose the audiobooks to complement the books that were available in the classroom so that the student-participants could occasionally read along.

In the first week, many of the student-participants continually showed up early to school to listen to their audiobooks, and would also opt out of recess to sit in the classroom and listen while reading their stories. Student 1 arrived to school each morning with a smile eager to tell Jessica about what was happening in his story. Student 2 would often tell Jessica how "sick"

(awesome) his story was, and how excited he was that he could actually read such a difficult book. Student 3 mentioned that she had always wanted to read some of these books but they had always been above her reading level. Now, Student 3 was excited that she could read any story she wanted because the audiobooks helped her to learn the words that were too hard to read on her own, and she could read the same books as her friends.

Jessica often held whole group morning meetings at which student-participants were able to share with each other their likes and dislikes and learn from each other. At one of the meetings some of the students stated a concern that the narrator read too fast and they were not able to keep up as they turned the page. In answer to this problem one of the students shared his own solution–he found a feature on the MP3 player that allowed the listener to slow down the narration speed. Jessica used the recording function of the MP3 player to record each student reading from his/her book, and then would have the student listen to his/her own recording so that the student was able to reflect upon the read-aloud. By identifying something about their reading that they liked and something that they wanted to improve upon, the students were able to be active participants of their own reading progress.

Over the one month intervention, Jessica's students increased their reading fluency by an average of 34 words per minute, with three students gaining over 40 words per minute. Overall, every student that Jessica worked with stated that listening to audiobooks while reading increased their reading fluency and confidence. They felt audiobooks showed them how certain words should be read, as well as what fluent readers sounded like. They found a new interest in reading because they were able to be in control of the process and they felt like successful readers. Unfortunately, the audiobook websites were blocked on the school computers, so students were unable to receive the support they needed to search and download books on their own. Although a few of the students began browsing online and picking their own books, overall, the difficulties of downloading books at school proved to be an obstacle to the project goal of developing a degree of autonomy. However, each student expressed the desire to continue to listen to audiobooks in the future, and use the research team's website about how to obtain audiobooks at home from various websites, including the public library.

Callie's Student-Participants and Context

In preparation for the project, Callie worked with her cooperating teacher to choose five second-grade students, three boys, and two girls. These young readers, ages seven and eight, were still at the stage of decoding words. All students were below grade level according to their DIBELS scores. Each student had a specific developmental reading obstacle, such as needing better phonemic awareness, reading too fast, adding sounds at the end of word, or being overly anxious.

Callie was particularly interested in developing the student-participants' ICT skills. All five students had computers and the Internet at home, so she planned to use the public library system to download audiobooks. However, most of the audiobooks available were at higher reading levels than the students could comprehend, and the school blocked the public library software, so she switched to finding audiobooks at the website *Lit2Go*.

The students were asked to listen to their audiobooks at least 15 minutes a night and keep a log in their homework folder. Callie met with the students once a day for 10 minutes to discuss their experiences and she kept a personal journal to document these conversations. Callie learned that over one weekend, a student listened to his audiobook for three hours. He was so excited

about the MP3 device that he did his chores around the house while listening to stories. Another student found that her most comfortable place to listen to audiobooks was under her bed. During the first two weeks of the project the students expressed a desire for more stories as they were quickly repeating the stories, so Callie made plans to teach them how to retrieve books themselves.

In the third week Callie showed them how to use the Internet to download the audiobooks onto the MP3 players. She spent time with each student on how to choose, download and store an audiobook. She also showed them how to print off the written story from the *Lit2Go* website. Callie assigned the students to download an audiobook at home over the weekend and draw a picture about the story. Although the students struggled with the downloading task at home, Callie persevered with the instructions at school, so that by the end of the fourth week each student was successful with little guidance from her.

In the final week, Callie interviewed the students about their experience. Student 1 told her how one of the stories made him scared because of the background music, which was a great perspective on the theatric potential of audiobooks. Student 2 commented that listening to the books at home kept her from getting bored; she had more confidence and her "regular" reading was faster. As for Student 3, Callie observed an increase in responsibility in other parts of school, which may be coincidental, but still notable. Student 4 wanted the printed text so she could read along to focus her attention. Student 5 wished he had more time throughout the school day to listen to the stories and practice downloading the books.

The student-participants showed remarkable skills in using the Internet and downloading books onto the MP3 players by the end of the project. In addition, Callie's students increased their reading fluency by an average of 17 words per minute over the one month intervention. All the students Callie worked with showed increased confidence in reading and expressed a desire to continue to use MP3 players for listening to audiobooks. Although Callie met some resistance at her school as she implemented her intervention, she felt she achieved her goal of empowering students to use MP3 devices as a reading alternative to the traditional written texts.

Jay's Student-Participants and Context

Jay consulted with his cooperating teacher and the school's reading interventionist to select five 3rd grade students who were all below benchmark on their DIBELS reading fluency scores. The following criteria was set forth for students to be a part of Jay's project: (a) they must listen at least fifteen minutes every day (with the weekends being optional) and must keep track of their time on a listening/reading log to be signed by a parent/guardian verifying the time, (b) they must write a two-three sentence summary after listening (reading along was optional), and (c) they must bring the folder containing the log sheet and the summary sheet as well as the MP3 player to school every day. It was decided that all of the MP3 players would have the same audiobook downloaded on them, *Alice in Wonderland*, available in the public domain, which was approximately three hours in length. The students were also given a printed copy of the book to read along as they listened.

During the first week, all the students were enthusiastically reporting positive experiences listening and reading along. Students reported listening for 45-70 minutes a day. However, as the weeks wore on, student accountability waned, with students not recording times, forgetting their folders, or not summarizing their reading. At the end of week two Jay sensed the students were becoming somewhat disinterested, so listening to the students' suggestions, he prepared all the

MP3 devices with fairy tales–five of Aesop's fables–ranging in lengths of 15-45 minutes. The students showed a renewed interest in listening to/reading the stories, indicated by the lively discussions in the group meetings. However, the recording of times and written summaries declined dramatically. Examples of the students' excuses were "I forgot", "I didn't have time", "I lost my folder", and "my parents were too busy".

In week four, the students were given instructions in using the computer to locate audiobooks. The school's Internet security prevented access to our project's website, so the students were provided a printed version of the tutorial for downloading the MP3 files, as well as a written list of sites where they could find audiobooks. Following the tutorials was difficult for the student-participants, but each student ultimately had success and expressed great satisfaction. The weekly recorded times once again slipped as all student-participants except one recorded lower listening times. However, all the students listened to their respective stories regularly and were able to provide a verbal summary of the story.

Over the six-week period Jay experienced several disappointments. The students didn't keep accurate logs or bring their folders to school. Students would not (or could not) summarize their stories. In retrospect, Jay concluded that students' interest in listening/reading began to drop with the longer audiobooks (e.g., three hours long). Over the six-week time period, Jay's students increased their reading fluency by an average of over 10 words per minute, the smallest average gain of the four projects described in this study. Jay learned the importance of selecting appropriate level of audiobooks, and maintaining a consistent instructional program. All things considered, the student-participants showed a genuine enthusiasm throughout the project, being very eager to learn new aspects regarding technology, such as locating websites and downloading an audiobook. The level of computer literacy and the ease at which they were able to grasp the mechanics of downloading and sharing files was far above what Jay expected, and was the highlight for Jay in his intervention.

Danielle's Student-Participants and Context

Of the four student-teacher projects included in this report, Danielle's methodology was the most structured and controlled, and as such, may also preview the most promising future research agenda. Danielle's project was comprised of eight students in a second and third grade blended classroom. All of the students were involved in reading interventions and were considered to be reading below grade level. Four second-grade students (one boy, three girls) were the participant group and four third-grade students (three boys, one girl) were the comparison group. Prior to this project's intervention, the normal routine was that all of the students in the class spent approximately 15 minutes a day in a teacher-directed reading center, in addition to the regular whole class literacy instruction.

Students in the participant group were given their own MP3 player preloaded with an audiobook, selected by Danielle in collaboration with her cooperating teacher. The participant group listened to the audiobooks during their normal reading center time for approximately 15 minutes a day, which allowed them to listen to the entire story during the designated reading period. Replicating the methodology of Samuels' (1979) repeated readings research, in which participants read the same story at least four times to increase students' fluency and decrease their errors, Danielle employed a method of "repeated listening" to each audiobook. Thus, the participant group listened to each story at least 4 times over a one-week period. The students were not given books to follow along with and were just asked to listen. Every week for four

weeks, a new audiobook was given to the students to listen to. The comparison group continued with their normal teacher-directed reading time and never used MP3s with audiobooks.

Over the course of the study both the participant group and the comparison group were tested on a weekly basis by the school's reading specialist using the AIMS tests. The AIMS test is designed to test oral reading fluency and is considered the standard at Danielle's school. Over the four-week period, Danielle's students increased their reading fluency by an average of over 16 words per minute. Additionally, the average number of errors by the participant group decreased by nearly 50%, from an average of nearly eight errors per minute to an average of four errors per minute. Danielle's goals did not include teaching students how to download audiobooks from the Internet. Instead, she focused on what benefits could be attained by employing a "listening only" method during the tightly controlled 15 minute reading period. She reported that all the students in the participant group were enthusiastic. The participating students said they would be more likely to "listen to literature" in their free time if they had an MP3 player. Although they preferred listening to a book rather than reading a book, they would enjoy the option of reading along with a text. Thus, the motivation to read became evident in these readers, who typically would not be interested in reading.

Student-Teachers' Collective Results

The individual preservice teacher stories in the above section emphasize the qualitative results, while this section will present test score data in the tables that follow. Prior to the intervention, in order to gauge the students' technology resources at home, a survey of student-participants indicated that most of the students' households had access to a computer as well as the Internet. However, of the 19 student-participants, only 8 (42%) owned an MP3 device. Nearly all of the student-participants (17 out of 19, 90%) had used audiobooks in the past, but only 2 of 19 (11%) of the students used an MP3 player to listen to audiobooks. Students were not asked specifically *by what means* they had previously listened to audiobooks, but we can reasonably assume that their prior experience came from a classroom listening station typical of many school reading programs, i.e., books on tape. The majority of parents had heard an audiobook previously, but only 4 of 19 (21%) reported that they knew any websites where they could download an audiobook. Furthermore, only 1 of the 19 (5%) of the parents had ever downloaded an MP3 audiobook.

Three preservice teachers (Jessica, Callie, and Jay) used pre- and post-intervention DIBELS scores as indicators of reading fluency (see Table 1). All of the students improved their scores, including three students in Jessica's group who improved by over 40 words per minute. These scores cannot be attributed solely to the MP3 intervention, but it's encouraging that the intervention was not a disruptive element, which could have hindered reading improvement, resulting in scores that might have decreased.

The scores of Danielle's four student-participants are compared to a comparison group of four students in Table 2. The results show that the student-participants (second-grade) improved much more than the comparison group (third-grade), but because they were a grade lower, and their pre-intervention scores were much lower at the beginnings, they had more "room for growth" so to speak. However, one notable comparison is in the number of errors. The average errors for the participant group decreased, while the average errors for the comparison group stayed the same.

Table 1

Students' Pre-/Post-DIBELS Fluency Scores (in words per minute)

	Jessica's			Callie's			Jay's		
	Before	After	Gain	Before	After	Gain	Before	After	Gain
Student 1	38	64	26	52	72	20	83	96	13
Student 2	52	94	42	58	71	13	45	51	6
Student 3	62	109	47	35	52	17	105	119	14
Student 4	83	94	11	29	49	20	102	113	11
Student 5	84	125	43	54	69	15	90	99	9
Average	63.8	97.2	33.8	45.6	62.6	17	85	95.6	10.6

Table 2

Danielle's Students' Pre-/Post-Fluency and Error Scores (AIMS)

	Fluency			Errors		
Participant Group	Pre	Post	Gain	Pre	Post	*Diff.
Student 1	31	53	22	11	4	-7
Student 2	17	42	25	9	2	-7
Student 3	46	50	4	6	5	-1
Student 4	47	62	15	5	5	0
Average	35.25	51.75	16.5	7.75	4	-3.75
Comparison Group	Pre	Post	Gain	Pre	Post	*Diff.
Student 1	96	104	8	3	4	1
Student 2	84	85	1	2	2	0
Student 3	59	65	6	9	5	-4
Student 4	67	78	11	4	5	1
Average	76.5	83	6.5	4.5	4	-.5

* A negative value indicates improvement

Discussion

This study included four different settings, in four different schools, and spanned three grade levels (Grades 2, 3, 4). Over the course of the project period, the student-teachers met with their supervising professor for two hours each week to clarify procedures, address concerns and share successes. In the last of the weekly meetings, the student-teachers were asked reflect on their experience, notes and summaries, and to identify some commonalities among their projects. Several broad themes emerged from the discussion, which included the following: (a) an overall improvement in student-participants' confidence in reading, (b) student-participants reported numerous positive experiences listening to audiobooks, often exceeding the minimum daily target, (c) both student-participants and pre-service teachers increased their awareness of the

opportunities available through the use of technology for literacy, developing their 21st century skills in digital literacy. These optimistic results were countered by the difficulties the student-teachers had using their school computers for this intervention, because for Jessica, Callie and Jay, the schools blocked websites and the downloading of files, even from the public library system.

Each preservice teacher received student-participant feedback that indicated an overall increase in each student's confidence in their reading capabilities. For example, one of Callie's students responded when asked about her favorite part of the project, "I can read quicker and easier now." This student's parents also remarked on their daughter's experiencing an easier time with reading at home. Many student-participants felt more comfortable reading books above their typical reading level. In addition, all students increased their DIBELS/AIMS scores, although we are not making the claim that the increase was a direct result of using MP3 players.

In all cases the student-participants viewed using MP3 players as exciting and fun, and by increasing their reading levels the students felt empowered. Some students remarked on the enjoyment of listening to a story rather than listening to music on the players, or expressed their preference for listening over reading. Clearly, the use of technology was a motivational factor from beginning to end, and must be considered as a factor contributing to the student-participants' willingness to participate and improve. Most students were successful at using technology to download the audiobooks and put them onto MP3 players, and seemed eager to use their new knowledge to access and download audiobooks on their own.

Action research allowed the preservice teachers a degree of flexibility to adapt their research according to events unfolding within the classroom. This reflexivity was necessary because of the sensitive nature of literacy development (e.g., veteran teachers have developed "tried and true" methods they are sometimes reluctant to relinquish). In addition to developing their research skills, the preservice teachers increased their capacity and understanding of what it takes to incorporate technology into their own teaching programs. Selecting the level of audiobooks, estimating the time needed to teach the skill of obtaining audiobooks, and developing the support (by teachers, parents, social network, etc.) to help younger students use technology effectively were capacity-building lessons for the student-teachers. As previous literature has suggested, having access to technology is insufficient without technical know-how (Tierney, Bond, & Bresler, 2006).

Teachers can develop an arsenal of digital literature options with the first step being to accumulate a classroom library of MP3 audiobooks, and investigate the MP3 audiobook resources at the public library. Audiobooks can be leveled according difficulty as well as reading speed. Whole groups of students can listen or read-a-long instead of small numbers of students being limited to a classroom reading station. Stories from a text could be read by the teacher at school, and students could take the audio version home to be shared with their parents. Distribution is easily handled by means of file sharing from a computer to an MP3 device. Audio files can be distributed to students' own MP3 devices or smartphones, or made available on a classroom webpage for parents to download. Space limitations for storage of scores of books is a non-issue. These few suggestions are elegant solutions for cash strapped schools and backpacks ladened with textbooks. To scale up this approach to include whole classrooms, and to track its specific effect on reading scores will involve a collaborative approach, a reorganization of curriculum, and some modest funding.

The mechanics of reading are well understood, but what potential is there to improve and support reading with a robust audiobooks program that emphasizes listening? For example, not

only can higher levels of literature be experienced, but in some circumstances, comprehension while listening (only) may be nearly equivalent to listening while reading (Neville, 1975) or listening might be preferred to reading (Topping, 1997). Danielle's well-controlled project using repetition in "listening only" offers interesting future research possibilities. Her students made substantial gains in fluency, and reduced their errors just by listening 15 minutes a day. Nonetheless, a listening only method such as the one employed by Danielle has to be seen as enrichment rather than a replacement of typical reading programs.

The use of MP3 players to listen while reading along replicates past methodologies in reading research, but it personalizes the access to literature in a 21st century manner. The mobility of an MP3 device can provide more contact time with literature, at higher levels, and be accessed or used 'anytime', 'anywhere'. An MP3 audiobook is easily replicable and sharable, especially using texts from the public domain. Teachers, who (understandably) are oriented to the printed world of books, need to allot a "space" in their curriculum for virtual books as well. Most importantly, if teachers teach their students how to access resources by themselves, the source of knowledge becomes decentralized and decoupled from a singular teacher or school (Johnson, Adams, & Haywood, 2011). By employing creative instructional strategies, teachers can leverage the potential of the MP3 audio format and the ubiquity of audio players to develop literacy and skills that are reflective of ICT expectations in a 21st century education.

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The Schools Ain't What They Used to Be and Never Was – 21st Century Schools, Learners, and Teachers[1]

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Abstract

This writing presents our views, as university teacher educators and scholars, concerning some issues pertaining to the readiness of contemporary Canadian education to move forward, well, with confidence and competence, into the mid-21st Century. We posit that all which is possible, educationally, lives in the give and take between Canadian education's geo-political, economic and linguistic past, the current functioning of contemporary schools as contested learning and teaching sites, and the increasing impacts of globalisation. We draw from guiding adult education principles in support of an enriched and expanded commitment to teacher professional development as a pathway to sustainable education reform.

Introduction

Everything is the way it is because it got that way
– D'Arcy Wentworth Thompson (Academic/Scholar)

As university teacher educators and scholars, we remain deeply committed to educating today for yesterday's tomorrow. Referring to the observations of legendary American entertainer Will Rogers, who said that *schools ain't what they use to be and never was*, Deal and Peterson (1990) argued that "nostalgia for the schools we remember, while important, may not produce the schools we need for the future" (p. 3). Our focus and commitment is to contribute to the successful navigation of an ever-changing educational landscape, fraught with challenges and uncertainty. We argue that for Canadian education / schooling to move forward into the mid-21st Century with confidence and competence, we need to hold that space of 'possibility' where within, resides great potential in the give and take between Canadian education's specific geo-political, economic and linguistic past, the current functioning of contemporary schools as contested learning and teaching sites, and the increasing impacts of globalisation.

Canada's Educational Heritage

Those who cannot remember the past are condemned to repeat it
– George Santayana (Philosopher)

Canadians often self-acknowledge how wonderful it is living in a contemporary, civil, democratically developed nation. Most Canadians appear to believe the nation is well-positioned

[1] The title of this paper, *The Schools Ain't What They Use To Be And Never Was*, are words attributed to the legendary figure Will Rogers (cited in Deal & Peterson, 1990).

to embrace the mid-21st Century. How so? Again, Canadians seem to believe the nation possesses, more or less, an appropriate and relevant, effective and efficient, education system. It is this education system, generally well located, that is and will educate citizens to compete in an increasingly demanding globalising world. However, Canada is not a nation of one federal or national education system. Basic, primary, and secondary education in Canada, except for Aboriginal citizens, is a provincial and/or territorial constitutional right and responsibility.

Across Canada then, school systems – located in diverse local urban and rural municipalities – operate through statues or laws determined by provincial and/or territorial governments. Respectively, provincial ministries of education delegate responsibilities to ministry divisions and branches such as: curriculum and instruction, programs, policy, operations, planning, teacher registration / certification, finance and budgeting, buildings and facilities, regional services and school board services, and so on. In some cases, there are further break downs into ministry prescriptions regarding curricular subject matters, programs of studies, guides, authorized textbooks and/or learning materials. In some provinces, mandated curriculums are linked to provincially mandated grade and/or subject specific learner examinations.

However, what schools have inherited within Canada's democratic confederation of provinces is a curricula, instructional and assessment flexibility, adaptability, and an independence to address evolving local needs and circumstances. Indeed, although a strength of a provincial system, it is also a weakness. Specifically, not all local circumstances are able to support the schooling needs for all its constituents with respect to adequate and appropriate capital, financial, and human resources.

Schools as Contested Sites of Social Change and Social Control

Children enter school as question marks and leave as periods
– Neil Postman (Author/Cultural critic)

Across the past fifty years, Hargreaves (1994, 1998, 2003, 2009) wrote that Canadian provincial school systems have sought to provide all learners with equal and equivalent learning opportunities. However, the achievement outcomes of learners are remarkably unequal. Hargreaves (1994, 1998, 2003) and Hargreaves and Shirley (2009) go on to suggest that school and ministry officers, in many attempts to foster reforms to ensure good learning and teaching outcomes, have not deeply understood the tensions evident between the school as both a site of societal social control and an opportunity space for educational reform.

Berger and Luckmann (1966) noted that institutions, such as schools, are quite resistant to societal change due to a process referred to as the *social dialectic*. Social dialectic refers to those at-work discourses – ways of being, knowing, speaking and doing – that make an institution 'that' institution. Indeed, educational history has shown that few institutional insiders have advanced novel, radical or transformational ideas / practices for the school. Most schools / school systems seem to simply react to outside change initiatives.

As such, Eisner (1998) noted that educational reforms are difficult to achieve and sustain. Several factors creating this difficulty include: a) many teachers conform to normalizing institutional roles and practices; b) many teachers, as societal representatives, rigidly adhere to deeply conservative, community-sanctioned values and behaviours; and c) many teachers become jaded over time with experiences of repeatedly failed reform attempts. The result is that,

at the institutional *and* teacher levels, schools and teachers, invited or forced into reforms, often retreat to passive or active resistance.

Eisner (1998), along with Hargreaves (1998, 2003), Fullan (1993) and Goodlad (1991) suggested that if meaningful school reform is to take hold, schools and school systems must begin with a significant and honest understanding of the school itself, the often contradictory culture as a social control, and the potential of schools and school systems as social reform sites. Equally important is the need to understand teacher identity and how teachers hold and represent, personally and professionally, the tensions between change and control. Only when these intentional, structural, curricular, pedagogical, and evaluative dimensions of schooling and teaching are collectively understood as a kind of cultural geo-ecology, might educational reform achieve true and successful realization.

Certainly, there are schools and school systems that have and do change – often dramatically – and often for the better. According to Gadamer (1989), Caputo (2000), Bernasconi (1995), Derrida and Vattimo (1996) and Vaterling (2003), the human and institutional tendency to seek change is itself, deeply embedded in the reflexive concept called *alterity*. Alterity is that moment of self-awareness, evident in one's individual and collective experiences, when one / we realize that when 'this' is happening and in this moment, alternatively, something different could have happened. That is, everything we do ultimately is defined in contrast to what it is not. Does a teacher or a school as a collective know, for example, when the learning and teaching practices at hand are not learner nourishing? So, the argument is: In every institution, such as schools, in the processes of normalizing members, there lives the possibility to be and become – alternatively – otherwise, or not of that institution. Choices made or not and, more importantly, consciousness of choice made or not depend on that process. However, the measures of institutional control seem to systemically and systematically overwhelm the alteric possibility of individual teachers engaging in reform. The question is: How might some schools and teachers tap into this alteric possibility of becoming re-formed or changed and, thus, pedagogically otherwise?

Canadian Schools are Learning Organizations

How do we create structures that move with change, that are flexible and adaptive, that enable rather than constrain?

– Margaret Wheatley (Writer/Management consultant)

In the 1960s, North Americans experienced several societal / cultural revolutions. These revolutions refocused citizen awareness regarding civic responsibilities, global awareness, popular culture / media, the fine arts, race, gender, institutional values, fashion, science, technology, economics and politics, demographic and social structures, as well as on ecology, war, justice, capitalism, legal systems, religion, spirituality, sexuality, and public-private property. As political, business and corporate establishments struggled to address these revolutions, school systems also became sites of contested value and application.

In the late 1960s and early 70s, schools came to feel the full effects of a newly emergent, largely urban and suburban, middle-class, populist neo-liberal movement. In schools and colleges, student-activist movements launched protests against war and against racial, gender, and personal discrimination. As a response to these changes, significant questions emerged about what should / ought to count as schooling and, indeed, what the purpose of

schools should / ought to be. Some citizens felt schools must advance academic-scholastic intellectualism. Others focused on social adjustment. Still, others argued for the delivery of career and skill's training? As with most debates, many citizens seemed to locate themselves in a middle position; schooling outcomes should feature literacy-numeracy competency, problem-solving and critical thinking, good citizenship, social competence, and employability skills.

It was then that the debate shifted to the degree of emphasis with respect to each outcome. However, as this conversation about schooling progressed in the late 1970s and into the early 80s, there emerged a social, economic, and political push-back against the neo-liberal agenda of advancing individual freedoms. This push-back response became known as neo-conservatism. Whereas 1960s-70s neo-liberalism was based on individual freedom and choice, 1970s-80s neo-conservatism was based on a political ideology of preservation. That is, neo-conservatism called for a return to traditional values that would enable an individual the freedom to be capitalistically successful. Simply, social control and social reform were playing themselves out on a societal stage; the schools and schooling became a flashpoint.

It was the neo-conservatives that came to form many Western governments in the 1980s and 90s. This is still evident in the early 21st Century. Neo-conservative governments claimed a need to protect the privileges associated with traditional – capitalist / parochial / patriarchal – social orders. Thus, the neoconservatives focused on the importance of returning to and preserving traditional family values, the Church, the military, the legal system, private property, the producer-consumer driven marketplace, and unconditional patriotism. Neo-conservatives, then, sought to prioritise the privatisation of national assets while forcing deregulation of the various marketplaces and industries in order to encourage business and corporate growth. Neo-conservative governments also sought to reduce anything that might be seen as impediments to free market-based corporate / business growth.

The impact of the tensions between neo-liberalism and neo-conservatism on education in the United Kingdom, New Zealand, Australia, the United States of America, and Canada has shaped today's early 21st Century school (Apple, 2004, 2006). For example, within Canada, the Albertan 'Progressive' Conservatives, in the 1980s and 90s and into the 21st Century through Premiers Peter Lougheed (Premier – 1971-1985), Don Getty (Premier – 1985-1992), and Ralph Klein (Premier – 1992 – 2006), legislated a series of systemically ideological and fiscal correctives targeting learners, teachers, schools, school boards, and the provincial education system. Using deficit and debt reduction and through the elimination of statutes and laws, these Albertan premiers declared that any monies spent on education would be declared as wasteful if schools could not show, empathetically and measurably, that their learners were able to compete, competently and confidently, in provincial, national, and international academic and market places.

During this time of out-of-the-closet neo-conservatism, for example, in most Alberta schools, parents emerged as educational consumers, learners were quantified as resources, teachers became knowledge / skill and attribute dispensing workers, and businesses / corporations were education's primary and true stakeholders. As well, schools were mandated to be more technocratic, managerial, and performance driven as results-based management sites for teaching and learning. Another example of this economic-managerial-business to education connectivity in Alberta may be seen in the re-working of the K-12 English Language Arts (ELA) curriculum in the mid-to-late 1990s, . In 1990, the Conference Board of Canada named employability knowledge and skills for the then pending 21st Century citizen. In re-structuring

Alberta's ELA curriculum, the Conference Board *Academic, Personal Management and Teamwork Skills* document became the required framework for creating the new K-12 ELA curriculum. The outcomes-based, standardization-framed ELA curriculum design then became the prototype used across all the subject matter program of studies in Alberta. As such, all the literacy, numeracy, and sciences and information computer technologies curricular areas were connected to career employability and/or professional academic standards. The required outcomes of every curriculum were to elevate standards of learning and teaching, thus ensuring competent citizen preparation for 21st Century globalisation.

Fullan (1993) and Hargreaves (1994) suggested that if any educational reforms were to become sustainable, there had to be understandings advanced about 'systemic organizational reform' and 'teacher readiness' to engage in reform. Systemic reform begins with governments making across-the-board reform educational legislation. Then, school systems and schools must adhere, by law, to the government's requirements for demonstrable outcomes in local schools. At the local levels of schooling, teachers must become active agents in reforming the school. Fullan (1993) and Hargreaves (1994) further suggested that if educational reforms are to succeed at all and on any level, reform requires collaborative interactions between educators and the local school / community, the district / region boards, and the provincial governments. Again, in many Canadian provinces from 1990 to the present, legitimation defining curriculum outcomes and standardization, resource allocations, accountability management regimes, business model budgeting, efficiency ratings and so on have become the school as institutional norm.

21st Century Learners, Teachers, and Schools

No question is so difficult to answer as that to which the answer is obvious.
– George Bernard Shaw (Playwright)

On January 1st, 1980, a remarkable human race event occurred; the first member of the Millennial Generation, or the Digital Native Generation, or Generation Y was born! That first birth meant that eighteen to twenty years later (eighteen to twenty years equals a generation) the world would be different from anything human beings had experienced previously. How so? For the first time in human history, four generations – *Traditionalists*, *Baby-Boomers*, *Generation X* and *Generation Y* – existed within the same society. *Generation Y* (or, at times, referred to as Gen M or Millennials or Digital Natives or Echo Boomers or 21st Century Learners or the Net Generation) are those persons born between 1980 and 1995. These 21st Century learners, in North America, have never known life without electronics and digitization such as: computers, the Internet / World Wide Web, electronic and digital toys, GPS systems, personal communication devices, cell phones, social networking sites, and so on.

Whereas a few teachers are *Traditionalists*, most teachers are *Boomer Generations* (born 1943 to 1960). Many teachers are of *Generation X* (born 1961 to 1983). In addition, some teachers are of the Millennial Generation. However, the vast majority of students in public schools in Canada are of the 21st Century generation. Although it is impossible to generalize accurately and describe characteristics of generations, some eleven years into the 21st Century, governments, schools, and teachers themselves are beginning to recognize how these changing demographics, within the current state of affairs / tensions in schools, are affecting the school's learning-teaching-assessment reform possibilities.

So, what is possible regarding 21st Century teachers and schools?

With respect to local school jurisdictions, each school holds the possibility of being an organizationally adaptive site. Most schools are living examples of the Canadian disposition to attempt to balance social control and social reform. For the most part, many schools have been moving towards becoming 21st Century 'learning organizations'. Schon (1983) and Senge et.al. (1994) wrote about generative sustainable institutions. They suggested that, across and throughout history, such institutions have succeeded because they remained open, in an alteric sense, to a continuous dialogue between tradition, change, and transformation.

The key to transformational sustainability in schools seems to live in the school as a local and international dialogical learning site. As well, the adaptively sustainable school must have internal champions who can shape and manage pending and actual transformations. School level agency, then, is dependent on member awareness of and commitments to capacity development within critical, reflexive audits of the school's heritage, including its appreciative history as an already existing adaptive learning organization. It is here, in this constitutionally framed, adaptive disposition, where a typical Canadian school's evolutionary synergy must live, survive, and thrive. It is here where the local school has been constitutionally defined by contextual boundaries as a local public place alive as yesterday's historical enterprise. However, the same site is also capable of being today's socially constructed, relevant, and adaptable learning and teaching organization. When the global – through globalization; rightly or wrongly – is unavoidably now understood as local, then this global-as-local context plays to the organizational and pedagogic strengths of the Canadian public school system. This is a system that is highly responsive – that is, quick to respond even if still constrained by resource availability. But even those issues 'of lack' add to the innovative resiliency of many local schools that regularly, facing changing landscapes, transcend their local circumstances and move learning and teaching forward into remarkable achievements. As such, Canadian schools have, in their lifeblood, the resilient abilities to adapt, change, and reconstitute themselves accordingly to any number of changing social, economic, or politically emergent trends. Also, it is here where mid 21st Century teachers, all adult learners themselves, have the potential to play a critical role in student learning success and in sustainable school reform.

Adult Education and Teacher Professional Development

Education is not preparation for life; education is life itself.
– John Dewey (Educational reformer)

Adult education, a field of scholarship and practice with roots deeply steeped in personal growth and development, community development, and societal change, has more recently come to include professional development across a broad range of disciplines and, more specifically, within workplace learning contexts. Most significant is that, historically, adult education and 'the political' cannot be separated. Beyond diversity of discipline and our individual roles and responsibilities, adult educators stand together, on common ground, in support of a more unified, just, and democratic society (Kawalilak, 2004).

Grassroots adult education has always been concerned with notions and practices pertaining to whose knowledge counts and to who holds the power. For this reason, social justice work and the promotion of a deepened and expanded social consciousness significantly informs

the field and practice of adult education. Simply put, adult educators work closely together with an aim to create conditions in support of an equitable world. Sound education for all informs adult education praxis. Adult education philosophy also advocates that education is power and those with roles and responsibilities related to the education of others need to also address their own lifelong learning needs. So then, what does adult education have to do with teachers and sustainable reform?

Teachers as Lifelong Learners

First and foremost, teachers, whether working with children or adults, are also lifelong adult learners. Another way to frame this, then, is to understand and appreciate teacher professional development within a lifelong learning context. Bateson (1994) reminded us that within our own lifelong learning experiences that we gather 'along the way', there is tremendous potential for knowledge construction, co-creation, and knowledge sharing.

The discourse continues on the connection between experience and learning and to *why, when, where,* and *how* adult learns. Regardless of what theoretical lens educators align to, there is general consensus that: adults learn and construct knowledge in a variety of ways; lived experiences provides rich fodder for learning and knowledge construction; and that lifelong learning serves as the foundational, guiding principle for meaningful, thoughtful, and intentional practice (Dewey, 1997; Fenwick, 2003; Goldberger, Tarule, Clinchy & Belenky,1996; Heimstra, 1993; Knowles, 1984; Kolb, 1984; Lindeman, 1989; Merriam, Caffarella & Baumgartner, 2006; Mezirow, 1998).

To extend adult education philosophy to the lifework of teachers, John Dewey (1859-1952), an educator, pragmatist philosopher, and psychologist, referred to education as the process of living – to life itself, and to learning as an active, experiential and organic, never-ending process. Barnes (1953) referred to "teaching [as] lifework" (p. 357) and maintained that learners have the right to experience teachers who are well-prepared, deeply committed, and who express a passion and sincere liking for their chosen vocation / lifework.

Teachers play a critical role in the shaping of a learner's world-view. Kawalilak (2008) elaborated:

> A shifting, global landscape continues to impact those who have chosen the privileged vocation of teaching. If teacher education hopes to live well in our changing world, the values that support this intention need to be deeply and visibly embedded throughout teacher education curriculum [and professional development initiatives]. These values include: inquiry and knowledge; social consciousness; equity and social justice; respect and concern for others of difference; diversity; community building; and ultimately, [aspiring to] teacher excellence.
>
> To open takes courage; this requires a loosening of grip on tightly held perceptions, assumptions, and agendas. To open…is a type of surrender, to make room for that which has yet to be discovered or experienced. Teacher education programs [and teacher professional development] that 'live well' commit to the creation of a space to receive and explore the unknown. Openness is an active, inclusive response. It communicates a willingness to participate and engage…. (p. 308)

Thoughtful and purposeful engagement connects us with other like-minded souls. Collectively, through meaningful dialogue, intention, and a unified focus, there is potential to co-

create community. In community, we unite to influence situations, political agendas, and events that compete with providing education that supports inquiry and critical thinking, an increased social consciousness, and an unwavering commitment to promoting social justice and equity. Lindeman (1989) embraced adult education as the heartbeat of social reformation and change and understood lifelong learning to be continual and potentially life illuminating. In his book titled *The Meaning of Adult Education* (originally published in 1926), Lindeman referred to the critical need for the development of an individual and for collective social intelligence.

A deepened commitment to teacher professional development benefits the teacher, students, education system, and the greater community. By embracing the lifelong learner within us, we continue to challenge ourselves to achieve excellence in our chosen vocation and are better equipped to meet the many challenges of an ever-changing and evolving landscape. Keller (2002) added to the discourse and stated:

> It is crucial that schools and communities recognize the importance of developing teachers as lifelong learners. It seems foolish to hope to engender life-long learning skills and attitudes in children without paying attention to those same skills and attitudes in developing the teachers of those children. (p. 5)

Keller (2002) also maintained that "new approaches to teacher learning must develop in parallel to new conceptions of schools and student learning" (p. 8) and that "just as student learning increases when attention is paid to their individual needs, so teachers will improve their practice given the support and opportunities to do so" (p. 10). Providing 'space' that includes a visible commitment, time, access, organizational support, and other resources to advance and enrich teacher professional development will contribute significantly to educating learners and teachers today, for yesterday's tomorrow in 21st Century Schools.

In Summary

Never doubt that a small committed group of citizens can change the world.
Indeed it is the only that ever has.
– Margaret Mead (Cultural anthropologist)

Most Canadians have a confidence in Canadian schooling / education. Canadian schools will take a greater and more responsive lead in hosting the lifelong learning and teaching needs of diverse Canadian citizens as we move towards the mid-21st Century. We believe the Canadian school will do as it always has – it will change and adapt. Why? Canadians, at a pedagogic level, know that no matter what the latest trends are – for example, today some educational experts are calling for virtual schools where learning is private, autonomous, connected, and on demand (any time and any place) – that without a 'public' learning, teaching and schooling space for people to gather and engage within their similarities and diversities, then 21st Century Canada will be a significantly reduced democratic nation of identifiable citizens. Without teachers teaching children and youth, in a public pedagogic space, how and why to engage individually and collaboratively with the developments and challenges of today's and tomorrow's social, commercial, political, and technological movements, the heart and soul of what it means to be an educated local-global citizen seems lessened. If the world is becoming increasingly complex, we, as adults, parents and educators cannot, and must not, abandon a single child to that

complexity without direct, present, and publically open teaching and learning being evident.

Finally, it will be, the public school teacher's 21st Century pedagogic practices that will, as always, ensure the best opportunities for all our diverse learners learning and living successfully in a constantly changing world. We cannot work backwards from our adult visions of frozen futures, never to be realized, for our children. We must be committed to doing good educational work with our children today; only then will their tomorrow look after itself. Hannah Arendt (1961) in an essay titled, *The Crisis in Education* in a text, *Between Past and Future*, wrote that the essential task of a contemporary educator / teacher is to philosophically, pragmatically, and pedagogically recognize that education / schooling has become, more so today than ever before, a paradoxically riddled social control-social reform game. Arendt (1991) maintained:

> The problem is simply to educate in such a way that seeing-right remains actually possible, even though it can, of course, never be assured. Our hope always hangs on the new which every generation brings; but precisely because we can base our hope only on this, we destroy everything if we so try to control that new that we, the old, can dictate how it will look. (p. 243)

Teachers must somehow bring children, without abandoning or victimizing or enabling them, into what is currently at stake in *their* education.

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The Importance of Using Technology-Enhanced 21st Century Literacy Skills To Support Culture and Diversity In The Classroom

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Abstract

Teaching in today's classrooms is not the same as it has been in the past; that is what teachers claim. There is a new generation of students, with new expectations and capacities, coming into the classroom. The Internet and technology in general are used everywhere to communicate and interact with others. Today, students are looking for different interactions and ways of learning in the classroom. Therefore, technology should be used not only because students are using new technologies ubiquitously outside of the classroom, but also because the use of technology can enrich students' understandings of diversity and culture, which can foster collaboration, participation, and collective intelligence.

Introduction

Teaching in today's classrooms is not the same as it has been in the past; that is what some teachers claim. There is a new generation of students, with new expectations and capacities, coming into the classroom. The *internet generation* or *digital natives* (Montgomery, 2007; Prensky, 2001; Tapscott, 1998) are terms used to refer to young students in today's world. The internet and other technologies are used everywhere outside of school to communicate and interact but not in an effective way that can foster learning and critical thinking. On the other hand, many schools are resistant to these changes and continue using traditional ways of teaching and learning. Educators need to understand that our society has evolved and that our students are looking for different interactions and ways of learning in the classroom.

As teachers, we need to develop skills and strategies that will supplement traditional teaching with new literacies; in other words, we need to implement technology-enhanced instruction that supports students in various ways of being and knowing. By doing so, students can use technology to engage in learning as well as develop critical thinking skills within e classroom like they do outside of them. The purpose of this paper, then, is to argue for the importance of using 21st century technology-based literacy skills to enhance culture and diversity in the classroom. First, we will define new literacies and their relationship to teaching and learning. Then we will present a Web 2.0 framework based on Lankshear and Knobel's (2006) two mindsets. After that, we will explain important components of the framework and provide examples of activities and studies where the technology has been successfully used to enhance such components. Finally, after mentioning the importance of teacher education, we will discuss the importance of new literacies in enhancing culture and diversity in the classroom.

New Literacies

According to The United Nations Educational, Scientific and Cultural Organization (n.d.) "Literacy can no longer be seen as just a technical skill; as simply the ability to read and

write"(n.p.). Different authors (Cope & Kalantzis, 2000; Kalantzis & Cope, 2009; New London Group, 1996) contend that traditional literacy can now be seen as complemented by multiliteracies. Lankshear and Knobel (2006) and Street (2003) refer to these literacies as "new literacies", (Botelho, 2007) as "critical multiliteracies", and Kirsch and Guthrie (1978) as "functional literacy"; this last one is more related to multitasking. All these views and definitions of literacy are the result of "the increasing cultural and linguistic diversity in society, an increasing awareness of the social, economic, and political forces enacted on curriculum; and the recognition of different modes of meaning making and communication (audio, visual, linguistic, spatial, performative, etc.) by educators"(Gallagher & Ntelioglou, 2011, p. 323).

Clearly, the word "literacy" has evolved extensively within the last 40 years. The term itself has become widely related not only to reading and writing but also to any form of acquiring knowledge and learning. We consider literacies a new way of understanding and seeing the world around us. Literacy involves all the different skills and processes required to interact and understand one another; skills and processes such as reading, writing, listening, speaking, using technology, understanding visual cues, using numbers, and critical thinking to communicate and comprehend the world. *New literacies* is an evolving term that faces constant change as new technologies and new literacies emerge (Cammack, Coiro, Kinzer, & Leu, 2004). It is not a new concept itself, but rather it involves different ways, tools, and technologies in the process of learning and interacting with other people.

Lankshear and Knobel (2006) affirm that the term new literacies refers to but is not limited to three-dimensional literacy, cultural literacy, critical literacy, technological literacy, higher order literacy, powerful literacy, and multiliteracies. According to the authors, literacy has three dimensions: the critical (meaning), the cultural (context), and the operational (language) (Green, 1998 in Lankshear & Knobel, 2006). The critical dimension refers to the understanding of literacy as socially constructed practices that involve effective participation. This includes being able to not only participate and make it meaningful, but also to transform and produce new literacies. The cultural dimension refers to the ability of being able to interpret meaning contextually. In other words, it emphasizes the importance of reading and writing within appropriate contexts to be able to successfully communicate with others. Finally, the operational dimension is the capability to play appropriately with the components of reading and writing. These multiple views of new literacies have changed and made our own views and understandings of literacy completely wide open and in a sense different. Within this view and according to Lankshear and Knobel (2006), we offer a Web 2.0 framework that will connect new literacies with teaching and learning. We argue that new literacies can be implemented in the classroom by using new technologies that students are already using outside of school. Our main idea is that new technologies can enrich our students by helping them to become more open minded, skillful, and at the same time conscious and respectful about others. When explaining each component of our framework, we focus on the importance of enhancing culture and diversity in the classroom by providing examples and activities that can be redesigned using new technologies.

A Web 2.0 Framework

To discuss new technologies we need to focus on the latest technological innovations. For example, Web 2.0 can be considered as a cultural phenomenon that has taken learning and participation to a different level. Web 2.0 supports a process known as 'massive collaboration,'

where many people build incrementally upon each other's work (Tenenbaum, 2006). Funk (2009) describes Web 2.0 as "a social transformation that has put more interactivity and control of content into the hands of regular users, not just big site owners" (p. xv). Geoff (2007) defines Web 2.0 as a name given to a new set of technologies that have changed completely the way people use the Internet, e.g., "Web 2.0 tools allow individuals to read information whilst networking with their friends at the same time; moreover, they can share knowledge with each other" (Uzunboylu et al., 2011, p. 721). Lankshear and Knobel (2006) refer to Web 2.0 as a new mindset; making a distinction between Web 1.0 (mindset 1) and Web 2.0 (mindset 2) respectively (p. 38) as shown in Table 1.

Table 1

Distinction between Web 1.0 and Web 2.0 from Lankshear and Knobel (2006)

Mindset 1	Mindset 2

The world is much the same as before, only now it is more technologized, or technologized in more sophisticated ways:
• The world is appropriately interpreted, understood and responded to in broadly physical-industrial terms
• Value is a function of scarcity.
• An 'industrial' view of production:
  • products as material artefacts
  • a focus on infrastructure and production units (e.g., a firm or company)
  • tools for producing
• Focus on individual intelligence
• Expertise and authority 'located' in individuals and institutions
• Space as enclosed and purpose specific
• Social relations of 'bookspace'; a stable 'textual order'
	The world is very different from before and largely as a result of the emergence and uptake of digital electronic internetworked technologies:
	• The world cannot adequately be interpreted, understand and responded to in physical-industrial terms
	• Value is a function of dispersion
	• A 'post-industrial' view of production:
	  • products as enabling services
	  • products as enabling services
	  • a focus on leverage and non finite Participation
	  • tools for mediating and relating
	• Focus on collective intelligence
	• Expertise and authority are distributed and collective; hybrid experts
	• Space as open, continuous and fluid
	• Social relations of emerging 'digital media space' texts in change

According to Lankshear and Knobel (2006), "Web 2.0 is defined by a 'post-industrial' world view that focuses much more on services and 'enabling' than on production and sale of materials" (p.43). In a Web 2.0 framework, a number of factors are important: collective participation, collaboration, distributed expertise, open and fluid spaces, and digital social relations. In combining Web 2.0 with new literacies (the critical, the cultural, and the operational, as described above), we consider these three aspects important: participation,

collaboration, and collective intelligence. We consider that these three components described below, will help in explaining the importance of using technology to enhance learning, cultural understanding, and diversity.

Participation

As mentioned previously, participation is one of the central components of new literacies (Lankshear & Knobel, 2006). In fact, one of the distinctions between Web 1.0 and Web 2.0 is participation rather than just publication. "Participation is the way that an online tool (application or service) is designed to facilitate and improve massive use by users" (Kim, Yue, Hall, & Gates, 2009, p. 662). According to Palloff and Pratt (2005) participation among learners is essential because it makes them active in the learning process rather than just sitting and receiving information from their teacher. The same authors add that participation provides students with an opportunity to find out about each other through the activities they perform together. Nov et.al (2009) affirm that participation in online communities can be divided in two forms or types: sharing information and goods and joining social networks. Sharing information and goods implies contributing to content and information. Examples can be tagging information, pictures, or/and bookmarking or commenting on weblogs or Facebook and participating in team blogs (Bryant et al., 2005; Cheshire & Antin, 2008; Koh et al., 2007; Lee, 2006; Marlow, Naaman, Boyd, & Davis, 2006). The second type of participation implies involvement of users in one or more interactions. An example of this is Flickr, where participation among users is created around topics of interest or reflections about already existent social organizations and structures (Negoescu & Gatica-Perez, 2008).

Additionally, the creation of one-to-one connections with other online members (by adding them as "friends" or "contacts") reflects participation in communities such as Facebook or Flickr where members can post, comment, and receive feedback from other users (Nov & Ye, 2008). In classrooms these applications can be used to engage students in discussing topics of interest for the class. For instance, students can post videos, pictures, readings, poems, etc. and ask their classmates to give their opinions and understandings of the topic. By doing so, the students, in fact, would be able to communicate with others, share their ideas, culture, and knowledge, which would promote their learning process in and outside the school. Furthermore, it is important to consider that when using technology and working online, studies have shown that students are less likely to be shy; thus, they participate and interact better with others. It is important to mention that since online safety is essential for our students, teachers need to look for websites that are safe for students and where students can interact, communicate, and learn from others. The majority of school districts today have websites that can be used to promote participation and learning not only within the district itself, but also with other districts and schools around the area and around the world. Finally, by participating, online students are more likely to interact with other people outside of their comfort group. Hurtado (1996) states that researchers have found positive effects of exposing students to diversity because it can improve students' educational outcomes. The author adds that students feel more included and valuable when they can interact and be heard by others. This can also improve students' skills such as tolerance, respect for others, and creativity because students are exposed to diverse interactions that can bring new ideas and many opportunities for learning, participating and collaborating.

Collaboration

Another important component of Web 2.0 is collaboration. Collaboration is vital to "new literacies" according to Lankshear and Knobel (2006). Tenenbaum [2006] defines collaboration as a process on which "individuals build incrementally upon each other's' work" (p. 53). Lankshear and Knobel (2006) affirm that collaboration is an example of collective intelligence and agree that "conventional social relations associated with roles of author/authority and expert have broken down radically under the move (…) from centralized authority to mass collaboration, and the like" (p. 52). The authors believe that knowledge is socially constructed. "Collaboration can be considered as an advanced form of participation in which participants directly or indirectly contribute to focused creation of contents serving a common purpose shared by the community" (Kim, Yue, Hall, & Gates, 2009, p. 662). Information can be shared freely on the internet, which can bring together students from across the world into the virtual environment. Students have the opportunity to enter into audio and video communication with friends outside the classroom. In one instance, "collaboration occurs when reviewers provide feedback on texts posted by authors for comment and review" (Lankshear & Knobel, 2006, p. 86). Additionally, collaboration can have a positive impact among participants since it requires them to work with each other on problem solving tasks and to negotiate meaning by sharing ideas (Stahl, Koschmann, & Suthers, 2006).

One example of collaboration is "Project Citizen," a program that encourages students to work towards solving their community problems, allowing them to create their own curriculum as well as ways to look for and find solutions (Schultz, 2008). In fact, Project Citizen gives students the opportunity to be engaged, allowing them to solve and identify problems to implement change within the school community or the local community. Since local knowledge is embedded in community practices, institutions, relations, and rituals, and since technology is a part of the local knowledge, Project Citizen is an example of how collaboration might be embedded in community practices (Schultz, 2008). In this case, teachers can use technology to help students learn about diverse solutions by connecting them online with other districts and communities with similar situations.

Another example of a Web 2.0 collaboration revolves around wikis and blogs. The online encyclopedia Wikipedia.org provides a good example of collaborative writing that promotes collective intelligence and knowledge production in the public domain. There are also second language websites where students post their blogs to improve their writing skills. Users can publish their blogs and receive feedback as well as new ideas from readers. In this way students are being assessed by their peers every time they post a blog, and learn while reflecting on other's work. At schools, students can use such websites or their school websites to create blogs, individually or as groups, where they write and investigate about diverse topics. It is important to add that depending on the type of collaboration project students can be assessed as individuals or in groups. In other words, collaboration can serve as a way of assessing how our students perform and interact with each other. Thus, students improve their research and writing skills as well as their abilities working as team members and building on meaning and common knowledge; this is a clear example of collective intelligence.

Collective intelligence

As mentioned before, collective intelligence is a form of collaboration that focuses on

creating knowledge itself more than on creating a product. "collective intelligence includes cooperative work and cooperative intelligence, but there is something more than just cooperation. (…) [It] takes many different forms including (…) collective work, collective thinking, group activities, enrichment and capitalization of knowledge and intelligence, and collective training" (Cornu, 2004, p.43). According to the same author, collective intelligence seeks to address multiple tasks and activities. In classrooms, learning is typically looked at as an individual task, but in fact, knowledge and abilities can be seen as collective entities, not just as isolated activities. Therefore, collective intelligence requires new tools such as information and communication technologies that permit all types of communication among users (Cornu, 2004).

Rheingold (2002) in his book, *Smart mobs: The next social revolution*, affirms that "[s]mart mobs consist of people who are able to act in concert even if they don't know each other. (…) [They] cooperate in ways never before possible because they carry devices that possess both communication and computing capabilities" (p. xii). The author sustains that "the Internet enables us to build collective intelligence" (p. 179) as smart mobs and create "[t]he social mind!" and agrees with Jenkins (2006) who considers that convergence culture is a word that can be used to describe industrial, social, technological and cultural changes; it depends on who is speaking and what is being said. Jenkins (2006) affirms that it is impossible for anyone to hold all the information about all the existing topics. Each person can only store a certain amount of information and even if it might be a lot, there will be always more information than what we can hold in our heads. At the same time, all the different pieces of information can be put together to create collective Intelligence. According to Jenkins (2006) collective intelligence could also be seen as a form of media power that can change the way we learn and share information to create a broader understanding and shared knowledge.

Activities that support collective intelligence should be a part of education due to its importance in the learning process. Yet, in a traditional classrooms setting, one can see how teachers are the ones who prepare the lessons, correct the exams, and assign the activities. In these contexts, students receive information from the teacher; there is no collective intelligence at all due to the limited access to technology and the tasks it supports. However, there are many activities and online resources that can promote collective intelligence. For instance, students can search for the same topic in different contexts and then share with the whole class to create a bigger understanding of the same idea. The majority of the activities that promote collective intelligence can be attached to different school subjects such as math, science, social studies, etc. and can be approached as jigsaws, where students become experts on one part of the subject that will be shared later with the whole class. Furthermore, students can work on learning about their classmates not only by asking them, but also by searching online about their cultures and customs. By sharing ideas and learning from each other students are building common knowledge that allows them to become aware of cultural differences and different ways to solve problems, as well as being more open minded and respectful to others. All of these help enhance cultural understanding and diversity.

Fostering Cultural Understanding and Diversity

We have been discussing the importance of enhancing culture and diversity in the classroom and how using technology improves awareness and skills among students. According to Semich, Gregory, and Grahams (2005), technology can play an important role in enhancing the cultural relationships and communications among diverse students in multicultural classes.

They add that computers and the internet constitute a hospitable environment for participation, collaboration, and collective intelligence among students belonging to diverse cultures. Using technology can be an effective tool used to foster relationships between cultures in the classroom (Schwartz, 2001). Furthermore, it offers reciprocal learning opportunities for all students participating in a learning community and promotes sharing of values, beliefs, and customs. Uzunboylu, Bicen, and Cavus (2010) point out that educators have a number of creative applications for the interactive format which is thought to enhance diversity in the classroom. An example of those applications is the use of web logs which can be helpful for students in various ways. For example, a group blog helps to develop different skills such as critical thinking and literacy skills which help learners to develop abilities to search the Internet for their school projects and assignments. In addition, blogs and wikis allow multiple students to share and collaborate in a format that can be used in different settings. Many interaction-based activities have been implemented by teachers without technology; what we suggest is that teachers redesign such activities to teach new literacy skills to their students.

There are a number of activities and exercises which can be supported by technology use to enhance culture and diversity in the classroom. One such activity that can be supported by communication technologies is BaFa BaFa. This simulation is based on the idea that students are divided into two groups according to two different cultures, namely Alpha and Beta. Participants play the role of tourists for a short time, and they are not allowed to tell anything about their countries and culture; the others are required to find that out themselves according to what they can understand from their observations and errors.

Another exercise the teacher can use to enhance culture and diversity is an activity where the teacher asks the students to look for fairytales from different countries around the world on the internet. Then, students mark on the map the country of the story they found; after that they email their colleagues from other classes to tell them about the stories and students have the option to provide country maps, flags, and illustrations. The other students provide feedback on their classmates' work through email.

As mentioned before, teachers can become creative and use what they know in a way that includes new literacies in their lessons and in their teaching. All in all, diversity and culture are fostered and at the same time students use technology, have fun, develop critical thinking skills, and learn to participate, collaborate, and build knowledge.

Teacher Education

It can be said that schools need to impart high standards of knowledge and skills. To make this happen, teachers can incorporate technology in the classrooms to maintain continuity with the outside world. Technology is not the end; it is a means to the end (Willis, 2006). Although schools have computers and access to the internet, teachers are often left to their own devices to integrate technology into their lessons. Their success depends on their readiness and willingness to incorporate technology. It is not enough to have the technology in the classroom, rather we should have teachers who are familiar with it and can use technology creatively to produce diverse results and to create inclusive classrooms. Therefore, there is an urgent need to prepare teachers to integrate technology in the classroom because the success of the school relies on how well teacher candidates are prepared (Willis, 2006). The purpose behind this, according to the author, is preparing teachers to help them build their own experiences in using technology in the classroom. The training could be on-going and provided at several levels, such as basic,

moderate and expert (Muir-Herzig, 2004). According to the authors, in Vannatta and O'Bannon`s Project PICT Training Model for preparing teachers to use technology, four components can be taken into consideration:

1. Teachers might share leaderships in setting the goals and activities to lead to technology incorporation.
2. Team collaboration to develop and execute lesson plans using technology.
3. One to one collaborations between participants during training when participants go through training.
4. Participants attend a certain number of sessions with instruction on integrating technology into lessons, classroom management, and methods on how to incorporate and evaluate technology.
5. Communication of expectations along with long-term goals of technology use. (Muir-Herzig, 2004).

Educating teachers to employ technology in the classroom to meet the standards of 21st century literacies might help teachers to adapt their instruction more closely to the local culture. In other words, this will help teachers create engaging content instruction with the technologies that students use outside of the classroom.

Conclusion

Because we live in a digital age where students are frequently interacting with new technologies, the use of technology has become an urgent need in educational settings. Therefore, educators and teachers in the 21st century should consider creating teaching environments that address these new requirements according to their students' interests and needs. Furthermore, we contend that teachers should be aware of new technologies, as well as trained in using the technologies that their students are using outside the classroom. This is not an easy job, as it requires time and preparation; however, the effort is worth towards students' engagement, motivation, cultural understanding, diversity and most important, meaningful learning. Additionally, students will become more diverse as well more prepared in different topics as they learn and interact with others. There is not a magic key or a perfect solution; these are just recommendations that can be used to integrate technology in the classroom and to engage students in meaningful learning opportunities. There is more to learn about the new literacies that technology requires and supports and ways of employing them in our teaching, but we hope this serves as a starting point.

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CALL FOR MANUSCRIPTS

For

***NORTHWEST PASSAGE: Journal of Educational Practices* Spring 2012 issue**

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1) NORTHWEST PASSAGE CALL FOR MANUSCRIPTS -
Theme: Past and Current Issues in Teacher Education

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Northwest Passage: Journal of Educational Practices, the official peer-reviewed journal of the Northwest Association of Teacher Educators (NWATE), seeks articles for its Spring 2012 issue on past and present issues in teacher education. We are also seeking examples from the field rather than only teacher education. Consider topics and themes below:

Northwest Passage: Journal of Educational Practices, the official peer-reviewed journal of the Northwest Association of Teacher Educators (NWATE), seeks articles for its permanent thematic areas, as well as a special section, listed below.

1) Arts Based Teaching and Learning

2) Teacher Certification

3) Field Experience and Supervision

4) Student Teaching

5) The Use of Technology to Enhance the Curriculum

6) Teaching in the Content Fields

7) Diversity, Multicultural and Special Education

8) Classroom Issues

9) Teacher Professional Development

A special section of the journal will be devoted to this year's theme: "**Past and Current Issues in Teacher Education**."

Teachers and teacher educators must reconcile and work within a shifting landscape of multiple levels of change based on past and present issues. On one hand, we receive educational mandates from national, provincial, or state governments; on the other, we draw from our personal-professional knowledge to craft curriculum and design programs. Both of these contexts are

placed within larger national and international change processes. Sometimes these processes line up, but often there is an element of tension between or among them.

To illuminate "**Past and Current Issues in Teacher Education**," we are seeking empirical and theoretical papers that document or explore these questions: What are some of the past issues in teacher education that remain unresolved? What new trends or issues in teacher education provide hope, frustration, challenge, or acquiesce?

We are interested in promoting an inclusive dialogue and invite submissions from faculty, graduate students, and practicing K-12 teachers and administrators.

PAPERS MUST BE SUBMITTED **VIA E-MAIL** NO LATER THAN DECEMBER 15, 2011 to Dr. Andrew Kitchenham at kitchena@unbc.ca.

I look forward to an engaging Spring 2012 issue!

Andrew Kitchenham

Editor

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NORTHWEST PASSAGE

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