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21st Century Learning: Professional Development in Practice

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Abstract

This study examined a school-based teacher professional development program as it was being conceptualized, designed, and put into practice. This article addresses four distinct, but interrelated components of the study. The first section presents a broad overview of literature situating 21st century learning. This examination specifically focuses on how this construct is conceptualized and defined by a variety of influential organizations as well as the various competencies often associated with this pedagogical perspective. The review concludes with a brief critique of this construct. The second section addresses the program areas under evaluation as well as the nature of the program and both its goals and context. The third section discusses the research questions, findings, and recommendations for action. The article concludes with comments for K-12 schools planning to implement teacher-centered professional development.

Keywords

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21ˢᵗ Century Learning: Professional Development in Practice

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This study examined a school-based teacher professional development program as it was being conceptualized, designed, and put into practice. This article addresses four distinct, but interrelated components of the study. The first section presents a broad overview of literature situating 21st century learning. This examination specifically focuses on how this construct is conceptualized and defined by a variety of influential organizations as well as the various competencies often associated with this pedagogical perspective. The review concludes with a brief critique of this construct. The second section addresses the program areas under evaluation as well as the nature of the program and both its goals and context. The third section discusses the research questions, findings, and recommendations for action. The article concludes with comments for K-12 schools planning to implement teacher-centered professional development. Keywords: Professional Development, Teacher, 21ˢᵗ Century Learning, Learning, Schooling.

Twenty first century learning, a concept that has been described and defined in variable ways by a number of influential organizations, dominates many of the policies and practices shaping the K-12 educational landscape at district, state, and federal levels. 21ˢᵗ century learning is typically used to describe the types of competencies needed to thrive in today's complex and interconnected global landscape. Examples of these skills include digital literacy, cultural competence, inventiveness, emotional awareness, entrepreneurship, critical thinking, and problem solving (Bill and Melinda Gates Foundation, 2013; Center for Public Education, 2013; Metiri, 2013; Partnership for 21ˢᵗ Century Learning, 2013). However, what 21ˢᵗ century learning looks like in practice, its implementation into K-12 settings, how it is measured, and those proficiencies considered most significant have garnered attention from both supporters and critics.

Howard Gardner (2007) argues life in the new millennium reflects a time of rapid, immeasurable change ushered in by constant advancements in science, technology, and globalization. As a result, the ways we communicate with one another, access and share information, and process knowledge have been inextricably altered. Within the various narratives situating the 21ˢᵗ century learning movement there is a sense that a disjuncture exists between the past and the future we are rapidly emerging towards; hence, the educational demands of this century require novel and different teaching practices that not only align with workforce preparation, but that also embrace highly collaborative project–based learning environments. Following this logic, it can be argued that today's students, often referred to as digital natives, need interactive pedagogical experiences that prepare them to solve complex problems, adapt to changing circumstances, and utilize technology to create opportunity, network with other like-minded individuals, and organize in novel ways (Christenson, 2010; Friedman, 2007; Wagner, 2008, 2012).

While many schools and districts throughout the United States have committed their attention to the paradigm of 21ˢᵗ century learning, there is a need to ensure teachers have clear ideas about what it means to "*be a 21ˢᵗ century learner;*" developing this understanding while experiencing the learning process within this pedagogical framework is both practical and

important. To do this work, many schools, including the one at the center of this investigation, have made a commitment to focus teacher professional development on 21st century learning. The following article discusses findings from an evaluative study of a professional development program at Rolling Meadows (pseudonym), a well-established, K-12 independent school located in the Mid-Atlantic region of the United States. This research was conducted as the school began developing their program and planning the initial phases of implementation. The study began with one primary research question: *How does Rolling Meadows' professional development program reflect the administration's goal to incorporate 21st century learning as its guiding principle?*

In early conversations with the Head of School, Deputy Head of School, and the newly hired Professional Development Coordinator, the importance of 21st century learning was emphasized as both philosophical and practical foundations of the PD program. As more was learned about the program's primary objectives, two other critically important questions emerged. These lines of inquiry served as lenses for examining the presence of 21st century learning in the program's initial conceptualization, design, development, and plans for implementation. These questions were:

1. *What perceptions do teachers at Rolling Meadows have about professional development?*
2. *What specific steps are school leaders taking to develop and begin implementation of a clearly articulated and structured professional development program at Rolling Meadows?*

While this work is certainly open to the critique that an evaluation of one local program has little generalizability. I do believe the findings and recommendations reported in the article do have relevance for those seeking to develop teacher-centered professional development programs, especially programs attempting to normalize a particular philosophy, pedagogy, or mindset. The researcher prescribes to the perspective that much can be learned from developing a rich, holistic understanding of particular cases, especially when they are "anchored in real-life situations" (Merriam, 2009, p. 51). Hence, we must acknowledge, although cautiously, the value and importance of context-dependent understandings and their potential implications for future work.

Subjectivity Statement

Before moving it is helpful to provide some insight into the commitments shaping this IRB approved work. First, I believe it is important to establish upfront that I believe school based professional development programs should be developed with teachers at the center. Professional development that is teacher-centered, draws on the specific needs of teachers, allows teachers to take on leadership roles and learn from their colleagues is most effective in creating a sustainable professions learning environment. Second, as both a researcher and practitioner I hold a strong belief that the current paradigm of teacher professional development, which is often "one-size fits all" and tends to be overly prescriptive, has resulted in teachers resisting and detesting professional development efforts. Professional development in many K-12 schools has, unfortunately, become an unfavorable practice. Third, as an education professor I am deeply committed to facilitating professional development opportunities for secondary teachers that focused on teachers developed needs, takes into account specific contexts, and embodies a constructivist approach that a lecture-based format. Hence, this research has emerged from my professional commitment to supporting teacher development in schools. Finally, this research draws on the epistemology of constructionism,

which Schwandt (2001) describes as a commitment to the belief that interpretation, knowledge, and understanding are not constructed in isolation, but rather "against a backdrop of shared understandings, practices, language, and so forth" (p. 30). Charmaz (2006) suggests constructivist research is focused on "*how*—and sometimes *why*—participants construct meanings and actions in specific situations" (p. 130). From this perspective, engaging in constructivist research aims to uncover:

> how, when, and to what extent the studied experience is embedded in larger and often, hidden positions, networks, situations, and relationships; differences between people become visible as well as hierarchies of power, communication, and opportunity that maintain and perpetuate differences and distinction. (Charmaz, 2006, p. 130)

It is also important to remind readers that the following discussion is situated within one particular discourse related to teacher professional; hence, it is not meant to serve as a singular truth or a rigid set of prescriptions to be forced upon teachers, schools, or districts. Rather, it is my hope the ideas presented will have the power to spark meaningful conversations about our role as educators, how we create professional learning communities within K-12 schools, and how we provide opportunities for teachers to engage in meaningful professional development.

The following article, which addresses four distinct, but interrelated components of the study, is organized in the following manner. The first section presents a broad overview of literature situating 21st century learning. This examination specifically focuses on how this construct is conceptualized and defined by a variety of influential organizations as well as the various competencies often associated with this pedagogical perspective. The review concludes with a brief critique of this construct. The second section addresses the program areas under evaluation as well as the nature of the program and both its goals and context. The third section discusses the research questions, findings, and recommendations for action. The article concludes with comments for K-12 schools planning to implement teacher-centered professional development.

Review of Literature

The world in which we live is rapidly changing; borders continue to blur into one another, political and military feuds increasingly spread into global conflicts, and domestic economies across the world are continuously pressured by the ebb and flow of international markets and events. In *Democracy and Education* John Dewey (1916) posits "a society which is mobile, which is full of channels for the distribution of a change occurring anywhere, must see to it that its members are educated to personal initiative and adaptability" (p. 88). Following and expanding on Dewey's logic, proponents of 21st century learning argue schools have a social responsibility to provide students with intellectually challenging experiences and opportunities to think creatively, innovatively, collaboratively, and across the boundaries that typically segregate what is commonly taught in school. For this to take place, Patrick Bassett (2005), president of the National Association of Independent Schools (NAIS), argues educators at all academic levels need to embrace a commitment to "a 21st century attitude" (p. 77). This commitment, he suggests, can be used to reconceptualize the purpose of America's educational priorities, policies, and practices.

I would like to suggest four perspectives as a way to begin making sense of this elusive construct. First, the ways in which information is accessed, processed, and shared have shifted dramatically in the last twenty years. Bassett (2006) argues, with this shift knowledge is no

longer "owned by experts" and this has resulted in the "communalization of knowledge" (p. 14). This transformation makes it necessary for educators to think differently about what knowledge is considered of most value, how we gather and consume ideas, and what it might mean to provide students with authentic opportunities to meaningfully collaborate. Second, because we have a multitude of ways to access and share information methods for how we communicate and connect with one another have shifted. Hence, it is important for those working in K-12 environments to consider the connections linking technology and social communication, and how this relationship can be utilized to facilitate and enhance cultural understanding in different and non-marginalizing ways. Third, the various skills and competencies needed to participate in a world dominated by rapidly expanding global networks and shifting economic challenges need to be more thoughtfully addressed within the school curriculum. Finally, schools must serve as spaces where students are constantly provided with opportunities to analyze, evaluate, synthesize and create. Pushing this idea further, Richard Passig (2007) posits broadening the cognitive domain of Bloom's taxonomy to include a skill he refers to as "melioration," or "the competence to borrow a concept from a field of knowledge supposedly far removed from his or her domain, and adapt it to a pressing challenge in an area of personal knowledge or interest" (p. 1). Grant Wiggins and Jay McTighe (2005), two highly regarded K-12 instructional designers, stress the significance of this skill as well; transferability, as they refer to it, should be the focus of the tasks students are engaged in. The following discussion addresses three areas of the literature: the organizations defining the construct 21st century learning; its associated competencies, and critique emerging from within the field of education.

Leading Frameworks

Recently, the Organization for Economic Cooperation and Development's (OECD) Definition and Selection of Competencies (DeSeCo) Project set out to specify what students need to learn in order to function well in the world, master changing technologies, and collectively face society's challenges. They developed a competency-based framework with three broad categories that would allow students to "go beyond the basic reproduction of accumulated knowledge" (OECD, 2005, p. 8). The competencies they value include the ability to interact effectively in heterogeneous groups and within the environment, set goals, and make autonomous, context-dependent decisions (OECD, 2005). In particular, the DeSeCo project incorporated a strong focus on socio-cultural tools, such as language, as vital to 21st century learning.

Along with the OECD, three other influential organizations have set out to define 21st century learning. One of these organizations, Metiri, is in the business of helping foster 21st century skills in students, teachers and school administrators. Their list of competencies, dubbed the "enGauge 21st century" includes digital literacy, inventive thinking, interactive communication and high productivity (Metiri, 2003). Metiri focuses on the importance of diverse group interaction and cultural literacy, but maintains a stronger focus on 'managing for results' and 'real-world application'. Such a focus shows the differing influence of these two groups, with the OECD politically mindful and Metiri much more business-oriented. This may also be due to the fact that the OECD is a multi-national group with a global outlook and Metiri's focus is primarily in the United States.

The Council on 21st Learning, comprised of education professionals "exploring the relationship among emerging media and the shifting economic, social, and cultural patterns in the U.S. and the world" (Council on 21st Century Learning, 2008a), has also solidified its influence. This organization seeks to support changes aimed at transforming conventional schooling into powerful learning that serves the needs of all people (Council on 21st Century

Learning, 2008a). The Council suggests 21st century education must embrace teaching and learning practices that prepare students to be active learners in a global, high-tech, information rich society (Council on 21st Century Learning, 2008b). To accomplish this, they believe students must be able to respond to rapid change, show a zest for learning, and embody skills that encourage innovation and collaboration. Their list is much less specific than either the OECD or Metiri's, and contains ideas such as the desire for students to be able to learn anytime, anywhere, and in multiple formats.

Lastly, the Partnership for 21st Century Skills has played a key role in promoting 21st century competencies. They argue students should be innovating, collaborating, and thinking critically and creatively (Partnership for 21st Century Skills, 2008b). The organizations goals are arguably the most developed of the four key groups mentioned here and focus on "solving complex problems" and "entrepreneurial thinking" (Partnership for 21st Century Skills, 2008a). In particular, this organization has made a strong commitment to promote civic responsibility and engagement. The Partnership argues that proficiency in these skills leading to effective citizenship will, ultimately, lead to more effective workers and leaders.

While all four organizations are committed to the belief that 21st century learning is vital to the future of education, they situate their goals in variable ways. Nevertheless, when the skills and competencies supported by the organizations are compared, common themes, such as communication, decision-making, creativity, and critical thinking emerge. Although these highly influential and well-funded organizations differ in key ways, they all agree today's students need an updated set of academic, social, and emotional capabilities and understandings to better prepare them to be engaged, informed, and participatory global citizens

21st Century Competencies

These four organizations, along with a number of influential academics, entrepreneurs, and legislators, have focused their efforts on defining the competencies associated with 21st century learning and pushing for their integration throughout P-20 education. For example, it has been argued that a focus on 21st century learning includes "preparing students to engage with a world of ever growing diversity and complexity" (Suarez-Orozco, 2005, p. 209) and encouraging educators to "incorporate multimedia technologies into everyday activities, and help students explore and master new ways to communicate what they are learning" (Regan, 2008, p. 11). In 2005, a group led by Chris Dede (2005) of Harvard University and funded by Learning Point Associates published a report on the economic imperatives for transforming learning for the 21st century. They suggested that "education must align curriculum and learning to a whole new economic model" (p. 3). To do this, schools need to ensure students work collaboratively, base learning on authentic experience, incorporate multiple forms of representation, and stress fluency in multiple medias (Dede et al, 2005). According to the Business-Higher Education Forum, an organization of Fortune 500 CEOs, prominent college and university presidents, and foundation leaders working to advance innovative solutions to our nation's education challenges in order to enhance U.S. competitiveness, "Today's high-performance job market requires graduates to be proficient in such cross functional skills and attributes as leadership, teamwork, problem solving, communication…time management, self-management, adaptability, analytical thinking, and global consciousness" (Bassett, 2005, p. 77). One thing seems certain: P-20 education is changing rapidly and there seems to be consensus that new pedagogical frameworks are emerging to deal with the complex challenges students will face in the 21st century and beyond.

Although it is difficult to create a definitive list of competencies that comprehensively define 21st century learning, the reviewed literature illuminates the following key ideas: Interaction with others from diverse backgrounds that results in increased social and emotional

competence and communication skills; technology integration; processing information from various forms of media to make informed decisions about quality, authenticity, and usefulness; thinking critically, creatively, innovatively; problem solving; taking responsibility for self and community; working collaboratively across disciplines. While these ideas are not meant to serve as a rigid or all-inclusive list, they do provide a useful foundation for thinking about and discussing the relevance and importance of 21st century learning. It is also important to point out that even though this paradigm has become central to the narrative guiding educational policy in the United States questions need to raise about its value. Hence, it makes sense to also provide a focused critique of this learning movement.

Dissenting Voices

From its inception, 21st century learning has not been without it critics. To begin, the competencies being advocated by organizations like the Council on 21st Century Learning, Partnership for 21st Century Learning, and Metiri are not necessarily new nor should they be regarded as spectacularly innovative. In fact, many are already central to many teacher preparation programs and can and have been identified in classrooms across the country. Diane Ravitch, a research professor of education at New York University, argues, "there is nothing new in the proposals of the 21st-century-skills movement. The same ideas were iterated and reiterated by pedagogues across the 20th century" (Sawchuk, 2009, p. 1). For decades educators and educational psychologists have been researching and writing about the integration of higher order thinking in the curriculum. Both Jean Piaget (1959) and Lev Vygotsky (1986), for example, noted that children must do more than merely memorize facts in order to progress in their development. Piaget suggested this development depended on cognitive processes that combined both concrete knowledge and complex thinking, while Vygotsky posited a similarly integrated approach to learning that emphasized the social construction of understanding.

Second, authentic performance-based assessment is a component that has not been fully developed by many of the organizations promoting 21st century learning. Elena Silva (2008) of the Education Sector has argued that fairly and reliably measuring such competencies (however they are defined) would be costly, may be unreliable, and may take extensive amounts of time. So while Silva supports the ideas underlying 21st century learning, she openly questions how accurate measurement can be with competencies that are difficult to measure through standardized tests. She did note that a few tests, such as the College Work and Readiness Assessment (CWRA), may come close to approximately measuring these new competencies. However, widespread, effective implementation of this assessment is something that is fiscally and pedagogically challenging outside of single schools, which may have private funds, or wealthier school districts. Similar types of tests, such as those utilized for Advanced Placement (AP) and International Baccalaureate (IB) programs, are also costly and time-consuming for those doing the assessing. Thus, putting into place a nation-wide, or even a district-wide assessments to measure 21st century learning is likely to be controversial due to the somewhat subjective nature of the grading as well as the high costs.

Lastly, much of the literature on 21st century learning is rooted in a discourse looking to connect education policy with economic and workplace measures of effectiveness. The Partnership for 21st Century Skills, for example, believes innovation, competition in the education sector, and greater demands in the workplace should serve as the primary basis for implementing their proposed competencies. In an October 2008 press release Ken Kay, president of the Partnership, clearly explained the organization's vision: "It has become apparent that all levels of American society--the public, business community, educators and policymakers--understand the importance 21st century skills play[s] in graduating students capable of succeeding in today's global economy" (Nagel, 2008, p. 1). Similarly, Metiri (2003)

advocates that economic advances are one of the key goals of their 21st century learning framework. Likewise, OECD has proposed that key goals for both individuals and societies across nations include gainful employment and economic productivity (OECD, 2005).

While these organizations may suggest they are focused on our students' best interests not economic outcomes, the amount of attention paid to economic goals remains substantial throughout policy materials. Schools solely focused on economic outcomes and the production of individuals to meet these ends are in peril of resembling assembly lines intent on creating particular types of individuals who think in certain ways. Pointing out the dangers of reproductive forces, Michael Apple (2004) suggests this economic approach to schooling "socializes people to accept as legitimate the limited roles they will ultimately fill in society" (p. 30). Additionally, efforts to force schools and teachers to shift their focus and energies away from the localized world of the individual and the community towards concerns dominated by economic imperatives and pre-determined destinies need to be critically examined.

Study Design

Conceptual Framework

In order to examine how Rolling Meadows was using 21st century learning to inform the development and implementation of their professional development program, it was important to first identify the programmatic components and the conceptual underpinnings situating the program. The leadership at Rolling Meadows set a goal to create a professional development program that was both purposeful and collaborative, set high standards of learning, was deeply rooted in a school-wide vision, and facilitated a deepened understanding and improvement of teaching practice (PD principles, 2008). These principles, as explained during interviews with school leadership, were to guide the planning, design, and execution of the PD program.

Hilda Borko's (2004) research on the primary components defining effective school-based professional development programs was utilized as a conceptual framework. These highly interrelated components, which include program goals, the teachers within the school, the professional development coordinator, and the program's context, helped to focus attention on the types of data to collect. First, the various processes guiding the functional and philosophical direction of Rolling Meadow's professional development program were identified and examined. Second, at the core of these processes are the lives of teachers. Listening to those [teachers] "who are learners in the system" not only serves as valuable insight into their core beliefs about professional development, but also provides information about their role in deciding the types of professional development experiences that are most beneficial (Borko, 2004, p. 4). To do this, the researcher surveyed teachers and attended faculty meetings to find out more about how these individuals understood professional development at Rolling Meadows. Third, the researchers set out to understand the role of the professional development coordinator who was recently hired to oversee the program's development, implementation, and growth. Fourth, both the schools' Board of Trustees and its Head of the school have decided the Rolling Meadows professional development program will focus supporting teachers create 21st century learning contexts. Hence, data on the extent to which these competencies were reflected in the program's philosophy, stated goals, and context was analyzed.

Program Context

Rolling Meadows is an independent, private school run by the administration and an appointed Board of Trustees. The administrative team and board compiled a set of strategic goals for the school, which included explicitly incorporating a focus on 21st century learning into the curriculum. Exactly how this was to be done was not specified; however, the board did note that teacher professional development would be key to successfully enacting such a vision. At the same time, as part of an accreditation self-study report, Deputy Head of School, David Adams, brought together a group of teachers to identify areas needing improvement in the school. Overwhelmingly, professional development was cited as a vital issue of concern, something with which the entire group concurred. The following fall, a large group of teachers met with Adams to create the school's "Professional Development Philosophy Statement" and "Professional Development Principles." Together, these two documents were meant to serve as a guide for how the professional development program would be designed, developed, and implemented. At the same time, another group of teachers created a documented outlining the school's "Core Beliefs of Learning," which highlighted teachers' perspectives about teaching and learning. It is important to note that none of these documents explicitly focused on or included any of the skills and competencies outlined in the extensive body of literature examining 21st century learning.

At the time of the study, Craig Melton, the schools' new Professional Development Coordinator, was charged with designing and executing the professional development program. Together with the Head of School, Kelly Wallace, and David Adams, they spent an entire school year examining how to effectively shift the focus of the school's professional development program so that it not only supported teachers in creating classrooms that reflected 21st century learning, but that also provided professional development experiences embracing this framework. The primary goals, according to both Adams and Melton, was to create a professional development program that was responsive to teachers' needs, involved them at a grassroots level, and valued their insights and feedback. Although the Head of the School was not interviewed, in administrative meetings attended by the researcher he reiterated the importance of incorporating a focus on 21st century learning into the school's professional development plan. Nevertheless, both Adams and Melton appeared to believe, at least in the immediate future, implementing this new framework was secondary to getting and ensuring teacher investment, involvement, and buy-in.

Methodology

This research utilized a mixed-method approach to examine a school-based teacher professional development program as it was being conceptualized, designed, and put into practice (Merriam, 2009; Weiss, 1998; Wiermsa & Jurs, 1995). This study was guided by three research questions and data collection relied on the use of a questionnaire, administrator and teacher interviews, review relevant documents, and attendance at a number of faculty meetings. While this topic could be investigated using a variety of methodologies, mixed-method was an ideal approach because it emphasizes in-depth description and analysis, triangulation of data sources, and what Cronbach (1975) calls "interpretation in context" (as cited in Merriam, 2009, p. 42). Yin (2009) recommends this approach as an effective research method for inquires conducted in settings where it may be difficult to separate a phenomenon from its context. This idea is important to consider because research focused on teacher professional development suggests there is a connection between and school culture and its organizational structure, policies, procedures, and norms.

The research site was purposefully selected for three primary reasons. First, the newly hired professional development coordinator was a graduate of the institution where the researcher was employed. This connection provided access and knowledge of the school's desire to revamp their professional development approach. Second, the researcher wanted to examine the development and implementation of a professional program. Because the selected research site was committed to this work, Rolling Meadows was an ideal context. Third, from the start, the school's administrative team made it clear that they wanted teachers to be directly involved with the creation of the new professional development program. This commitment was attractive given the researchers belief that school-based professional programs are not as useful for teachers when their voice and involvement is silenced.

After an initial meeting with school leadership, the researchers developed the initial research question, designed the study, and began identifying sources for the literature review. In addition, a questionnaire was developed to survey the teaching staff. After receiving participant consent, the school's professional development coordinator sent the survey electronically to teachers with a note reminding them responses would be kept anonymous. Prior to administering the questionnaire, it was piloted on a group of teachers during a professional development workshop. These teachers volunteered to participate and were given the option to not participate. The goal of this process was to "uncover deficiencies" that were not apparent by simply reviewing the items and to identify "confusing and ambiguous language, and to obtain information about possible patterns of results" (Wiermsa & Jurs, 2005, p. 171). Participation in this pilot process was voluntary and feedback was only used to inform further development of the instrument. Pilot participants completed the questionnaire and then convened in small groups to provide specific feedback utilizing criteria Wiermsa and Jurs (2005) suggested are important to consider when constructing and evaluating survey items.

Study participants were identified in the following way. First, the researcher attended their first full faculty (K-12) meeting of the year. At this meeting, teachers were explained the scope and purpose of the project. It was also explained that agreement to participate in the project included completing an anonymous, online questionnaire regarding their beliefs and perspectives about professional development and then, if contacted, participate in one 75-minute interview. Second, shortly after the meeting, all teachers in the school were sent the questionnaire, which included a consent form. Teachers were free to decide whether or not they would like to participate. The response rate to the questionnaire (and agreement to participate in the study) was 77% (out of 105 total teachers in the school, K-12, 80 responded). Third, to identify participants for interviews, the researcher randomly selected one teacher from primary grades (K-5), one from middle grades (6-8), and one from high school (9-12). Additionally, 2 administrators were interviewed: the Head of the School, David Adams and the school's Professional Development Director, Craig Melton.

The data collection process included a number of steps. To begin, the researcher attended and collected data at a number of professional development meetings. At these meetings, which were focused on assessing and changing current professional development practices, school leadership engaged teachers in discussion about the two documents that would guide the new professional development program, at the school: the Professional Development Philosophy Statement; and the Professional Development Principles. After receiving and analyzing questionnaire responses from about 80 respondents (77% of faculty), the researcher conducted one 75-minute semi-structured interview with the Deputy Head of School, the Professional Development Coordinator, and three teachers (one primary, one middle school, and one secondary) with the goal of learning more about the context, purpose, scope, and goals of the school's PD program. Discussion also focused on interviewees' perspectives about 21st century learning and its infusion into the new PD program. Each of the interviews, which coincided with the development and implementation of the program, enabled the researcher "to

respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic" (Merriam, 2009, p. 91). Interviews were recorded using an MP3 player and transcribed by a well-established, highly recommended transcription service. Data from the questionnaire, interviews, professional development meetings, and documents related to the professional development program's planning and initial development were analyzed for themes and patterns.

Findings

Preferred Types of Professional Development

The researcher found that the majority of surveyed teachers preferred professional development that included both subject-area content and general pedagogical strategies focused on motivation, engagement, and creative assessment strategies. When asked to "choose one professional development activity that you feel has been beneficial to your teaching," the responses were varied, but the most popular choices were conferences, workshops, and university coursework. All three teachers that were interviewed reiterated their preference for professional development facilitated by groups and organizations outside if Rolling Meadows. Adria (pseudonym), a veteran 2nd grade teacher said, "I just value the opportunity to hear and experience the perspectives of professionals outside of my school." Similarly, Ashley (pseudonym), who was in her 3rd year as a high school teacher, commented, "I just love getting to learn from outside experts who can provide ideas and resources that I can bring back to school and share with colleagues and integrate into my instruction." While both questionnaire and survey data demonstrates certain professional development activities were preferred among others, the data also aligns with those activities that were most valued by school administrators.

Although professional development does take place during faculty meetings and through collaborative curriculum planning, teachers were, as noted numerous times by school administrators, encouraged to participate in activities facilitated by individuals and organizations that were not directly associated with Rolling Meadows. Melton reiterated the value of professional development opportunities offered outside the school. "We value when teachers seek out chances to learn outside the boundaries of our school. It helps to add perspective to the school and offer new teaching approaches for consideration" In the past, teachers have been pushed to take advantage of opportunities to travel regionally, nationally and even internationally to make presentations about their work in the classroom and learn more about content, pedagogy, and the education profession in general. Additionally, when taking university coursework, the school frequently reimbursed teachers for the cost. Hence, it makes sense why respondents selected these off-campus activities as the most frequently attended professional development events.

When asked to elaborate more specifically about what they preferred about professional development, a number of responses stood out. Some of the most common perspectives included sharing ideas with and learning from other teachers as well as exposure to new classroom techniques, content and pedagogy. Bill, (pseudonym) a 6th grade math teacher, who was the third teacher to be interviewed, emphasized a desire to share new ideas with colleagues. "I just really think it is important to share what we learn as a way to connect to other teachers." While these preferences align with research examining teachers' professional development preferences, the fact that respondents did not specifically mention school based curriculum development projects is important because both Adams and Melton noted that these activities have not been a key part of the school's professional development focus in the past. Additionally, it is worthwhile to note that no teacher, in either the questionnaire or during

interviews, made any specific references of connections between their professional development experiences and/or preferences, preferred or required, with 21st century learning. Moreover, when discussing their professional development experiences, participants did not meaningfully discuss any of the specific skills and competencies put forth by many of the organizations leading this movement. Data demonstrates teachers were more enthusiastic about learning from their peers (either at Rolling Meadows or from other schools) or gaining new insights about their content. In fact, there was consensus in survey data that increasing knowledge and understanding of one's content area was a highly valued form of professional development. Although study participants were consistently engaged in activities to improve their pedagogical practices, it was clear that 21st century learning was not an explicit foundation or focus for these professional learning opportunities. That said, it is important to note that participants did not feel as though they were, to quote one teacher, "missing out on something," because 21st century learning was not a part of their professional development emphasis; rather, it seems as though this pedagogical focus has just not trickled down from the administration to the teaching staff.

Perspectives about the Role of Professional Development

While the majority of participants reported that professional development was important to them, when asked to explain their perspectives about purpose and use of professional development, response were varied. While almost all of the surveyed teachers felt that they needed some form of professional development, it was also clear that the focus and content mattered. Most commonly, teachers noted that they wanted to use professional development as a way to keep up with new ideas and practices within the field of education and to learn more about their specific content areas. In addition, a number of teachers reported that activities that they considered to be "effective professional development" needed to be directly relevant to their classroom practices and provide resources to support these practices. All three of the teachers who we interviewed reiterated this perspective. Adria's comments summarize this consensus well. "If the professional development will not directly help me in the classroom, then it is a waste."

Responses to an open-ended question to teachers about how they would structure a professional development program if given the chance underscore the viewpoints expressed by Ashley, Adria, and Bill. It is important to note that both the school's administrative team and its professional development coordinator were very interested in teachers' responses to this particular question because they have stated their commitment to listen to teacher input as they develop and implement the school's new professional development program. Overwhelmingly teachers wanted meaningful opportunities to collaborate with their peers. This supports a statement made by Melton during an interview when he suggested that teacher-led professional developments would be popular at Rolling Meadows because of the amount of expertise that exists in their school and the collaborative atmosphere that existed. Both Melton and Adams also emphasized the importance of having teachers work with one another. In addition, teachers expressed interest in learning about content and engaging in experiences that will lead to improving classroom practices. However, nothing was specifically mentioned about the skills linked to 21st century learning.

Although both Adams and Melton said one of primary of goal of a revamped professional program was to make decisions about activities more inclusive, few of the surveyed teachers have felt that the process has been open or transparent. In fact, the responses about whether teachers have been directly involved in recent decisions related to professional development were split. This issue was discussed with Melton and he admitted this was an issue that needed to be examined in depth and addressed in a meaningful way. Data

demonstrates teachers are not involved with professional development decisions and activities to the extent that they feel like stakeholder or to the level that school leadership has discussed and ultimately envisions.

In the final two questions of the survey, 21st learning was explicitly addressed. Because both Melton and Adams emphasized the importance of this movement as a pedagogical foundation of the school's professional development program, it was assumed teacher participants would mention related skills and competencies in their survey responses and/or interviews, but this turned out to not be the case. A few of the responses to survey questions shed light on why there was little focus on 21st century learning by participants. A majority of participants reported that they either knew very little or nothing about 21st century learning. Those teacher who responded that they were in fact familiar with or addressed 21st skills in their classrooms, overwhelmingly listed technology as a key component. When referencing technology, having students use computers to develop presentation materials and conduct research using the Internet was the most common description of how 21st century learning was integrated into their classrooms. None of participant responses, from either the survey or during interviews, demonstrated that they had a clear understanding of 21st century learning or experienced professional development specifically focused on these skills. Hence, the administration and professional development coordinator have some work ahead of them as they integrate this framework into the professional development activities offered at Rolling Meadows.

Perspectives from the School Leadership

During informal discussions and formal interviews, both Adams and Melton were very forthcoming with their thoughts and concerns surrounding the implementation of 21st century learning into the school's professional development program. In addition to specifically hiring a professional coordinator, a position that had not previously existed, it was made clear that the school's administration believed teacher participation was a central component to developing an effective professional development program; this work has to be, as Melton pointed out on a number of occasions, a "grassroots movement that genuinely values teachers' voices and perspectives."

When asked what they believed the teachers wanted out of professional development, Adams stated that he thought they would say they want a program that is more "transparent, equitable and appropriate for them." Additionally, it was noted, that they wanted to feel that the school is more egalitarian in distributing professional development opportunities (including trips to conferences) and that the professional development coordinator would be creating and facilitating more opportunities at the school. Agreeing with Adams' perspective, Melton added that, in the past, teachers have experienced professional development as top-down, a practice that he is hoping to change immediately. In fact, Melton explained that one of his first steps in his new position is putting into place a system that involves self-evaluation of professional development goals, so that teachers "can be in charge of their own destiny."

Both Adams and Melton were less clear about how 21st century learning would specifically be implemented into professional development. Adams explained that even with the Board of Trustee's decision to focus on 21st century learning as a central component of the school strategic goals it was clearly noted that this framework was not yet in place. At the time of the study, the only element of 21st century learning that was currently part of Rolling Meadows professional development program was the utilization of technology, which may help explain many of the participants' survey responses. Nonetheless, one of Melton's primary goals for the upcoming school year was to more effectively integrate 21st century learning into the various professional development activities offered to faculty.

Analysis of Findings

Data analysis involved a process of open coding, axial coding, and thematic coding that was used to synthesize data into convergent and divergent themes to highlight commonalities, differences, patterns, and structures of meaning within the data. Creswell (2007), Maxwell (2005), and Merriam (2002) each suggest data analysis can be one of the most challenging aspects of the research process. To address potential challenges such as being overwhelmed by large amounts of interview data or lacking a clearly organized framework for analysis, a five-part strategy guides this process.

First, selected response items from the survey were analyzed in SPSS using descriptive statistics. This data not only provided important insight about the research questions, but it also informed further development of the teacher, and administrator interview protocols. Second, relevant school documents were analyzed to identify policies and themes addressing professional development. Third, interview transcripts and open-ended survey items were analyzed using open, axial, and thematic coding. Fourth, as a way to reflect on and synthesize findings the researcher wrote memos during the process of data collection and analysis to make conceptual connections to research questions and catch "thoughts, capture comparisons and connections….and crystallize questions and directions…to pursue" (Charmaz, 2006, p. 73). Lastly, research findings and conclusions are discussed using the framework informing the development of the conceptual framework (Borko, 2004)

Interview transcripts and open-ended responses from the survey were coded and analyzed using the following strategy. First, the researcher read through interview transcripts to code data for elements of particular interest and ideas related to the questions framing the study. These codes or "categories of information" (Corbin & Strauss, 2007), along with methodological notes explicating the codes were recorded by hand in the margins of the transcripts. This process of open coding helped the researcher begin constructing themes that frame both the study's findings and conclusions. Second, after working through the transcript the researcher reviewed the codes and methodological notes placed in the margins and grouped similar ideas together.

This analytic strategy, which is often referred to as axial coding (Corbin & Strauss, 2007) or analytical coding (Merriam, 2002), allowed the researcher to begin identifying more specific categories of meaning within the data. Third, thematic coding was used to synthesize data into convergent and divergent themes that illuminate commonalities, differences, patterns, and structures of meaning within the data. To represent these findings, the researcher developed a matrix outlining the central themes with specific examples from the data. This final thematic coding process helped the researcher synthesize data, offer a framework to analyze findings within a theoretical context, and provide an organizational structure. The following analysis is organized by the research questions guiding the study.

Primary Research Question

How does Rolling Meadows' professional development program reflect the administration's goal to incorporate 21st century learning as its guiding principle?

As it currently exists, the professional development program at Rolling Meadows does not incorporate 21st century learning in the ways school leadership and the newly hired professional development coordinator envisioned. To be clear, PD opportunities targeting teachers at Rolling Meadows did not explicitly focus on the various kills and competencies commonly associated with 21st century learning. Additionally, those in charge of facilitating

professional development at Rolling Meadows were not purposefully utilizing 21st century learning as framework to engage participants. As observed and understood by the researcher, 21st century learning was absent from the content, context, and process of professional development. While technology was certainly a part of professional development, teachers had little understanding about it role within 21st century learning. For example, most PD related to technology was related to computer lab usage and instruction in specific software such as PowerPoint, Excel, and Inspiration; few connections were made between technology, the learning process, and how this engagement can be used to create new knowledge and vary communication patterns among students.

There also seems to be an additional layer of disconnect. While both the PD director and Deputy Head of School noted the mis-alignment between goals and implementation in the initial year, the Head of the School seem to believe the 21st century learning concept had already become an embedded focus of the PD program at Rolling Meadows. Similarly, the school's Board of Trustees had already approved 21st century learning as part of the institution's strategic plan and were operating under the assumption that this framework was already in place and being fully utilized. It is worth noting, however, there seems to be one primary reason for this inconsistency.

One of primary goals that emerged from early meetings between school leadership and teacher was for the new program to evolve through a grassroots approach led by teachers. The last thing school leadership wanted was for this new focus on 21st century learning to appear or feel like it was being enforced from the top with the expectation that it would trickle down. Addressing this specific concern, the school's PD director emphasized a number of times that he wants to implement a professional learning program that not only focuses on 21st century learning, but that also has teacher buy-in and direct involvement. Without spending more time talking to and planning with teachers, assessing needs and potential obstacles, and responding to feedback from stakeholders, the PD program will fall short of its intended goals.

Emergent Research Question 2

> What do teachers at Rolling Meadows think about the role and importance of professional development?

Teachers at Rolling Meadows overwhelmingly believe professional development is important to their growth. However, they have varied ideas about the role(s) of professional development at their school and in their classroom practices. Many teachers believe their colleagues to be one of the best sources of new learning, something echoed by the school's PD director. This appears to be a common place of understanding from which to work, and would also help support the school's goal of making professional development more teacher-centered.

In addition, there may be other overlaps between the goals of the administration and those of teachers. When asked about the importance of professional development, the school leadership team emphasized that teachers want resources to help them become more effective classroom teachers. Similarly, the most common response to the survey question regarding professional development preferences was that teachers wanted to engage in professional development in order to "keep up to date" with theory, practice, and new ideas within the field of education. This demonstrates a desire by sizable group to be open to new ideas, such as 21st century learning.

Emergent Research Question 3

> What steps are school leaders taking to develop and begin implementation of a structured professional development program at Rolling Meadows?

Currently, the three administrators interviewed appear to be in the planning stages to change the professional development program at Rolling Meadows. During interviews, there was consensus that school leadership is committed to developing the program with heavy input and involvement from the teaching staff. The decision to pursue teacher involvement, input, and approval on the school's Professional Development Philosophy Statement and its Professional Development Principles is a clear indication that school leadership is shifting their approach to professional development at Rolling Meadows.

In initial meetings school leaders were very excited about the possibility of focusing professional development on 21st century learning. However, the current program does not appear to be explicitly utilizing this idea and the majority of teachers surveyed and interviewed teachers have little knowledge about related skills and competencies. While a structured professional development program focused on 21st century learning appears to be emerging, it does not currently align with the initial timetable put forth by school leadership. Both the administration and the PD Director are aware of this inconsistency and have immediate plans to develop strategies to address the issues.

Recommendations for Action

This study sought to answer a number of important questions related to the implementation of a new professional development program at Rolling Meadows. Based on findings, there are number of recommendations that will be useful for school leadership as they move forward in establishing 21st century learning as a central tenet of its professional development program. It is important to also note that the following recommendations are conceptualized so they have both relevance and utility for any school leaders in the process of developing professional learning experiences for teachers.

Create Meaningful Discourse

As noted in previous sections of the article, there is a clear lack of knowledge and understanding among the teaching staff regarding the skills and competencies associated with 21st century learning. Hence, the first recommendation is that school leaders develop strategies that will provide teachers with opportunities to engage in thoughtful discussion about 21st century learning. This may include utilizing professional development time to introduce the framework and then incorporating activities for teachers surrounding these skills. It could also include bringing in speakers or qualified trainers to engage teachers in conversation about 21st century learning and an in-depth understanding of this rapidly growing pedagogical movement. In the end, for this shift in professional development to be "grassroots" as school leadership intends, teachers must not only feel involved in discussions, but must also feel that they have enough insight to actively participate and become authentic stakeholders in the development of a new professional learning program.

Teacher Participation

One common problem that many of the school-based professional development programs face is the lack of teacher input regarding content, context, and relevance. As noted

previously, a number of the policies and perspectives shaping 21st century learning are situated outside of schools walls. These individuals leading this movement are, for the most part, politicians, privately funded policy organizations, and the corporate sector; teachers and teacher educators have, unfortunately, been left out of the discussion. This marginalization has led to an atmosphere of mistrust among educators, who argue professional development that is detached from practice and does not reflect the specific needs of teachers or involve them in the decision-making practice, will be much more difficult to authentically implement. Hence, a professional development program intended to emerge from a grassroots approach must directly involve teachers in the development, implementation, and evaluation phases.

Alignment of Goals and Objectives with Implementation

Administrators and school leaders in developing and implementing a professional development program need to make sure they are in full agreement about goals and expectations. For example, the two members of Rolling Meadows administrative team most intimately involved with transitioning the school's professional development program to its new focus on 21st century learning were clearly excited, committed, and working diligently to get teacher investment. Yet, both the Head of School and its Board of Directors wanted immediate implementation and believed this was going to happen rather quickly. In fact, members of the Board were operating under the assumption that the new program's implementation would be a top-down approach that would be mandated to the school's faculty and staff. While it was clear that each of the school leaders who were involved care deeply about the implementation of the program, there needs to be clear and honest discussion to ensure goals, objectives and timelines are in alignment.

Clarity of Professional Development Philosophy

To ensure full integration of 21st century learning, it is recommended that this pedagogical vision be clearly explicated in any relevant resources. In the case of Rolling Meadows, 21st century learning and related competencies should have been more explicitly stated in both the school's *Professional Development Mission Statement* and *Professional Development Principles.* This is problematic because these two documents were to serve as guiding foundations for a new professional development program. Unfortunately, teacher had a tremendously difficult time making any connections between 21st century learning and their professional development. In fact, echoing the critique of Jay Mathews (2008), teachers were unable to make any meaningful distinctions between the new and old professional development program. Additionally, many in the school still believe that 21st century learning is synonymous with technology integration. While many groups promoting 21st century learning do in fact mention technology, it is certainly not the only focus of any of their platforms. A much more concerted effort needs to be put in place to connect program philosophy with program development and implementation.

Consistent Assessment

As a school develops a new PD program, it is important for leaders to consider strategies for providing teachers a consistent method for providing feedback. This process could take the form of quick surveys or faculty meetings where teachers can freely talk about their perceptions, beliefs, and suggestions related to new programs as well as how they feel about whether the program focus is beneficial. A teacher advisory group might be the most opportune sounding board for school leadership. Any school engaging in the endeavor, especially for the

first time, should conduct periodic assessment a means for better understanding development, implementation, and outcomes.

Final Thoughts

As noted in the literature review, proponents of 21st century learning believe schools have an ethical responsibility to provide students with intellectually stimulating experiences and opportunities to think creatively, innovatively, and collaboratively. Those working on incorporating 21st century skills in the classroom, such as the administration and teachers at Rolling Meadows, demonstrate that actual implementation means facing a myriad of obstacles in how teachers conceptualize these new skills and use them in their classroom practice. Creating engaged, informed, and participatory global citizens is a central goal that the school shares with many of the proponents of 21st century skills. At both the micro and macro levels, however, key obstacles such as collaboration with teachers have shown to hinder implementation. Just as some of the groups promoting 21st century skills are made up entirely of businesspeople, at Rolling Meadows those mainly in charge of changing the professional development are those whose job has less to do with the day-to-day teaching and learning that goes on with students.

Similarly, much of the critique surrounding 21st century skills is not that they are useless, but rather that the groups who promote these skills do less to promote exactly how they look in the classroom and how teachers and students are evaluated on these skills throughout the year. In other words, from both the policy makers and the administration at Rolling Meadows, the arguments remain broad: incorporate technology and encourage collaboration, for example. Without clear ability to practice these skills and a framework for incorporating them into the classroom, teachers at Rolling Meadows overwhelmingly continue to believe that "21st century skills" involve merely the use of technology in their lessons. With this critique, however, does come many hopeful aspects as the administrators at Rolling Meadows seek to move beyond simple understandings of the 21st century skills framework and think about how teachers and students can begin utilizing these skills in the classroom.

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