Core Knowledge Area Module Number 3:

Principles of Social Systems

School Change and the Integration of

Video Games as an Educational Technology

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OVERVIEW

This Knowledge Area Module (KAM) focuses on developing a working theory of school change that can be used to guide the integration of emerging educational technologies, such as video games and simulations. To produce a preliminary theory, the breadth portion of the KAM will begins with a synthesis of Senge, Evans, and Fullan's work in school change. Then to further develop the theory, this is followed in the depth portion of the KAM by a synthesis of prominent theories of professional learning communities. Prominent theorists who are included in this examination are DuFour & DuFour, Wald & Castlebury, Huffman & Hipp, Roberts & Pruit, Hord, and Stone & Cuper. In addition, an annotated bibliography of 15 articles is also appended to the depth demonstration. Throughout the breadth and the depth portions of the KAM, these theories of school change are related to the integration of emerging educational technologies, such as video games and simulations. Finally, the application portion concludes with the explicated design of a three-hour professional development session to provide educational leaders with guidance in facilitating the process of implementing school change of this sort at their sites and in their programs.

BREADTH

Introduction

Emerging technologies, such as video games and simulations, show a great deal of promise as educational tools, particularly in constructivist learning environments. However a great deal of organizational change is required for schools to fully adopt and take advantage of promising new technologies. It is important for educators, educational technologists, and administrators to understand the nature and complexity of school change, and to act with this knowledge in mind when integrating new technologies. Therefore, the purpose of this breadth portion of the Knowledge Area Module (KAM) is to synthesize the work of Senge, Evans, and Fullan to produce a preliminary working theory of school change that can be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment.

Senge (1990) introduced the idea of a learning organization, explored ways in which organizations can manifest learning disabilities, and suggested a number of disciplines for fostering a learning organization, including the pursuit of systems thinking, personal mastery, mental models, shared vision, and team learning. He provided concrete examples of his theories at work in various industries (Senge et al., 1994), and later focused specifically on their application in the field of education (Senge et al., 2000). Senge wrote in 1990 "all too often, great organizations are fleeting, enjoying their moment in the sun, then passing quietly back into the ranks of the mediocre" (p. 11). When he turned to writing about schools' inability to support "the kinds of multifaceted, in-depth relationships between people that facilitate learning" (Senge, 1994, p. 486), especially over the long-term, he blamed this on educational institution's

centralized nature, regulations, and large sizes (p. 486). He later wrote that the assembly-line

system of education which "dramatically increased educational output" (2000, p. 31) initially,

actually "created many of the most intractable problems with which students, teachers, and

parents struggle to this day" (p. 31). Though he felt "we face a vital and yet seemingly

impossible task: re-creating schools to serve students who will grow up in a post industrial

world" (p. 9) that is precisely what he set out to do.

Evans (1996), too, believed that "radical change is crucial and possible" (p.3). His focus,

though, was on the difficulties presented by the human side of school change, the psychological

factors. Evans (1996), who cites Senge often, was also interested in the nature of change and the

capacity of organizations to implement and sustain changes. He was particularly concerned with

the culture of resistance found in many schools, and in ways that an authentic educational leader

might understand reluctant faculty and thus be able to provide vision tempered by realism. Evans

(2004) also considered the role of students' families in changing school cultures.

Fullan, who cited Senge often as well, also cited constructivist educational theorists such

as Dewey. Though Fullan's early work focused on helping school administrators survive in a

system of change over which they had little control (Fullan, 1991, 1997, 1998), his *Change

Forces* trilogy (Fullan, 1993, 1999, 2003a) focused on helping them to understand and even

influence the complex systems that surrounded them. His newer works focus on the complexity

of reform (2001a), leading in a culture of change (2001b), the moral purpose of this leadership

(2003b), and breakthrough strategies for large-scale sustainable reform (2004, 2006). He

recommended respecting "the messiness of the process required to identify best solutions and

generate internal commitment form the majority of organization members" (Fullan, 2001a, p.

118). He also found that "within the apparent disorder of the process there are hidden coherence-making features" (p. 118).

Each of these authors explicitly or implicitly supported the development of constructivist learning environments and the development of 21st Century Learning Skills. Evans (2004), for instance, called for schools to "emphasize 'constructivism', higher-order thinking, and interdisciplinary learning" (p. 149), and Fullan (1999) was interested in "purposeful knowledge creation" (p. 16). They each saw the importance of providing a context for learning. Evans (1996) called for "real-life exhibitions rather than traditional tests" (p. 58), and Fullan believed that "learning in context is the learning with the greatest payoff" (p. 127). Within this context, inquiry-driven learning can be powerful. Senge et al. (2000) found the skill of inquiry to be central to the practice of personal mastery (p. 68), and Fullan (1993) considered "a spirit of inquiry and continuous learning" critical to any change initiative (p. 67). Even the constructivist concept of social negotiation played a role in each of their philosophies. Senge et al. (1999) wrote that "organizations, like all human groups, operate through conversation" (p. 35), and Fullan (2001a) recognized the importance of "social learning… exchanging ideas, support, and positive feelings about" (p. 126). The power of reflection was also a recurring theme in their work. Senge et al. (2000) believed that "educational practice must be informed by critical reflection" (p. 318), while Fullan (2006) noted that "opportunities for the team to debrief and reflect on… practice and progress" (p. 94) was critical. Twenty-first century skills, such as risk taking, are frequently valued by each of these authors as well. Each of them understood that "if people do not venture into uncertainty, no significant change will occur" (Fullan, 1993, p. 25).

Facilitating Organizational Change

Senge, Evans, and Fullan were briefly introduced in the previous section. Each is a prominent theorist in the field of organizational change in education, making their work an ideal basis for a working theory of school change. A thorough review of their work has revealed ten elements of school change that can be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment. Five of these relate to instigating or facilitating organizational change. These are to respect the realities of change, use systems thinking, support personal learning, support collaborative learning, and develop leadership.

1. Respect the Realities of Change

To be successful, change agents must respect that organizational change is a complicated, difficult, and time-consuming process – especially in an educational institution.

The need for change in schools is clear, and the failure of past change efforts is evident. Fullan (1999) noted "so far, schools are much more a conservative agency for the status quo than a revolutionary force for transformation" (p. 10). Although the need for change is clear, schools have largely failed to enact and sustain meaningful changes. Unfortunately, as Evans noted, "changes that deal with the essentials of schooling - teaching and learning - seem to prove weak and temporary, but changes that enlarge and enhance the administrative bureaucracy seem to prove strong and enduring" (Elmore and McLaughlin, p.4, as cited in Evans, 1996, p. 79).

Fullan (1993) wrote, "to break through this impasse, educators must see themselves and be seen as experts in the dynamics of change" (p. 4). He suggested that "we need a dual approach working simultaneously on individual and institutional development" (p. 12) and

identified several individual capacities (personal vision building, inquiry, mastery, and collaboration) reminiscent of Senge's five disciplines, and several institutional counterparts (shared vision building, organizational structures, norms, and practices of inquiry) that also appear in the Professional Learning Community literature reviewed in the Depth portion of this KAM. Fullan's new paradigm of school change included elements of complexity theory (1999, p.4, 2003, p.21-23), evolutionary theory (1999, p. 6), and capacity building (p. 9). Ultimately, he concluded that "working through the complexities of change until we get shared meaning and commitment is the only way to get substantial improvement" (Fullan, 2001b, p. 272).

Each of these authors identified concepts that can help educational change agents work through these complexities. Chief among these was Senge's (1990) concept of a *learning organization*, an organization "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (p. 3). Senge et al (2000) later dealt with schools as learning organizations, as did Fullan (1993), who recognized several common ingredients for successful restructuring: getting clear on the focus of change, making change organizational and systemic, managing the ongoing change process, and "the recognition that structural changes would not be sufficient without changes in ideas, beliefs, and attitudes" (p. 78).

Closely related to their focus on ideas, beliefs, and attitudes, was a focus by all three of these authors on the purpose (or moral purpose in Fullan's case) behind educational change. Evans (1996) called for focus and clarity in educational change initiatives, especially in response to the questions of what, why, and how (p. 75). Later, Evans (2004) took a very Senge-like (and business-like) stance when he suggests that discussions about purpose in schools should start

with questions such as "'what are we really good at?' ' as a school what do we do best with students?' [and] 'what do we really value and how do our actions show our values?'" (p. 75). Fullan (1993), of course, felt that "education has a moral purpose… to make a difference in the lives of students regardless of background, and to help produce citizens who can live and work productively in increasingly dynamic complex societies" (p. 4). He felt that the moral purpose of school should include facilitating critical enculturation, providing access to knowledge, building an effective teacher-student connection, and practicing good stewardship (p. 8-9).

The adoption of video games and simulations as educational technologies will be a complex process, which will only be successful if those responsible for the initiatives respect these realities of organizational change. They must recognize the need for change, the failure of past change efforts, the resulting need to be skilled change agents, the nature and complexity of organizational change, and the need for strong moral purpose behind the change they propose.

2. Use Systems Thinking

Systems thinking, as opposed to linear or rational-structural thinking, can be a positive tool for change agents to understand and use in educational institutions. Senge (1990) noted that "we tend to focus on snapshots of isolated parts of the system, and wonder why our deepest problems never seem to get solved" (p. 7), and he introduced "a conceptual framework… to make the full patterns clearer, and to help us see how to change them effectively" (p. 7).

This framework included the laws of systems thinking (Senge, 1990, p. 57), many of which can serve as powerful reminders to educational change agents. These include the concept that "the harder you push, the harder the system pushes back" (p. 58), "the easy way out usually leads back in" (p. 60), "faster is slower" (p. 62), and "small changes can produce big results - but

the areas of highest leverage are often the least obvious" (p. 63). He also identified systems archetypes that can be used by change agents to understand larger patterns. These included concepts such as limits to growth (p. 95), shifting the burden (p. 104), reinforcing processes (Senge et al, 2000, p. 84), balancing processes (p. 86), and delays (p. 91). Senge et al. (2000) also believed that "in any effort to foster schools that learn, changes will make a difference only if they take place at… three levels" (p. 11), the learning classroom (including teachers, students, and parents, p. 12), the learning school (including school leaders, principals, superintendents, school board members, and representatives of higher education, p. 14), and the learning community (including community members and other lifelong learners, p. 16).

Senge et al. (1999) developed a perspective that assumed "human groups, processes, and activities are self-organizing, like ecological niches" (p. 144). Fullan (2001a) later applied four principals of living systems to educational organizations: *equilibrium* as the precursor to death, *the edge of chaos* as a source for new solutions, *self organization* as a source of *emergent* solutions, and *disturbance* as a more reliable tool for change than direction (p. 108-109). Fullan warned, though, "there is a time to disturb and a time to cohere" (p. 116). He looked to concepts in complexity science (formerly chaos theory) to describe the process of coherence-making; s*trange attractors*, for instance, "involve experiences or forces that attract the energies and commitment of employees… they are not predictable in a specific sense, but as outcomes are likely (if not inevitable) in the process we are describing" (p. 215).

Fullan (2003b) also suggested that change agents "must be cognizant that changing their schools and the system is a simultaneous proposition" (p. 4). This understanding will help them avoid what he calls the *if-only dependency*: the assumption "that the system must get its act together before people can start doing their jobs" (p. 19). He went on to note system-imposed

barriers to change, such as centralization or decentralization (p. 21), role overload and role ambiguity (p. 22), limited investment in leadership development (p. 23), neglect of leadership succession (p. 24), and the absence of a system change strategy (p. 25). To over come such barriers, he suggested that systems must enter a cycle of push and recovery, just as individuals do (Fullan, 2005, p. 44).

There will be many barriers to the adoption of video games and simulations as educational technologies. The change agents responsible for these initiatives will need to understand and use systems thinking if they hope to lead their organizations through the cycles of push and recovery necessary for the integration and diffusion of new innovations.

3. Support Personal Learning

Any organizational change begins with individual change, which requires individual learning. Any change agent hoping to facilitate organizational change would do well to first support personal learning. As Senge (1990) explained, "organizations learn only through individuals who learn. Individual learning does not guarantee organizational learning. But without it no organizational learning occurs" (p. 141). To that end, two of Senge's five disciplines support personal learning - personal mastery, and mental models.

Senge (1990) described personal mastery as "the discipline of continually clarifying and deepening our personal vision, of focusing our energies, of developing patience, and of seeing reality objectively" (p. 7). He went on to explain that it "starts by clarifying the things that really matter to us, of living our lives in the service of our highest aspirations" (p. 8). He then laid out several practices and principals critical to personal mastery, including personal vision (p. 147), holding creative tension between current realities and personal vision, (p. 150), commitment to

the truth - especially about current reality (p. 159), and using the subconscious (p. 161). He also included systems thinking as part of personal mastery and focuses on the importance of integrating Reason and Intuition (p. 167), seeing our connectedness to the world (p. 169), compassion (Senge, 1990, p. 171), and commitment to the whole (p. 171). He also notes "people with a high level of personal mastery are acutely aware of their ignorance, their incompetence, their growth areas" (p. 142).

Senge et al. (2000) saw teachers as "coaches in personal mastery for students" (p. 59) and believed that "the epitome of personal mastery in the classroom is helping children to decipher their passions, to explore whether they believe these are possible, and to nurture their courage to delve into it, without judging them right or wrong" (p. 111).

An important part of personal mastery for anyone involved in a change effort – or anyone involved in learning, including students and teachers – is an ability to question mental models. Senge (1990) defined mental models as "deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action" (p. 8). He went on to explain that "the discipline of working with mental models starts with turning the mirror inward; learning to unearth out internal pictures of the world, to bring them to the surface and hold them rigorously to scrutiny" (p. 9). Unexamined mental models can thus limit people's ability to change; as Senge et al (2000) pointed out, "*in any new experience, most people are drawn to take in and remember only the information that reinforces their existing mental models*" (p. 67). Senge (1990) also pointed out "most of our mental models are systematically flawed. They miss critical feedback relationships, misjudge time delays, and often focus on variables that are visible or salient, not necessarily high leverage" (Senge, 1990, p. 203).

Fullan, too, believed that organizational change starts with personal learning. He wrote "personal purpose and vision are the starting agenda. It comes from within, it gives meaning to work, and it exists independent of the particular organization or group we happen to be in" (Fullan, 1993, p. 13). He felt that "personal vision in teaching is too often implicit and dormant" (p. 14) and he believed in the "the central importance of teachers' learning, individually and in relation to colleagues" (p. 62). Purpose came into play here again for Fullan; he explained, "paradoxically, personal purpose is the route to *organizational* change" (p. 14).

Change agents responsible for implementing emerging technologies, such as video games and simulations, in schools will need to support personal learning (both related to the new technologies, and related to the mission of the school). This support will need to include development of personal mastery, the ability to scrutinize mental models, and a sense of personal vision for everyone involved in the change effort.

4. Support Collaborative Learning

Personal learning is a necessary condition for organizational change, but it is not sufficient; there must also be a degree of collaborative learning as well. As Fullan (2001b) stated, "we have long known the value of collaboration and the debilitating effects of isolation" (p. 6). Two more of Senge's five disciplines support this need for collaborative learning: shared vision and team learning. Evans' philosophy acknowledges the difficulty of this, and Fullan argues it's critical importance for schools.

Senge (1990) warns that "if people do not share a common vision, and do not share common 'mental models' about the… reality within which they operate, empowering people will only increase organizational stress and the burden of management to maintain coherence and

direction" (p. 146). How then do organizations build shared vision? According to Senge (1990), building shared vision "involves the skills of unearthing shared 'pictures of the future' that foster genuine commitment and enrollment instead of compliance" (p. 9). Senge et al. (1994) identified five stages of shared vision: telling, selling, testing, consulting, and co-creating (p. 314). The further an organization is to the right on this scale (the co-creating side), the more likely a shared vision will engender genuine commitment.

Senge (1990) noted, "Shared visions emerge from personal visions... [and that] organizations intent on building shared visions continually encourage members to develop their personal visions" (p. 211). However, he also noted "alignment is the *necessary condition* before empowering the individual will empower the whole team" (p. 235). The practice that helps bridge the gap between personal visions and shared visions – and that helps to ensure alignment – is team learning.

Senge (1990) writes that "the discipline of team learning starts with 'dialog,' the capacity of members of a team to suspend assumptions and enter into a genuine 'thinking together" (p. 10). Team learning is a "collective discipline" (p. 237) that "requires practice" (p. 238). Critical elements of team learning include "the need to think insightfully about complex issues" (p. 236), "the need for innovative coordinated action" (p. 236), and the skills of "dialogue and discussion, the two distinct ways that teams converse" (p. 237).

Evans supported the collaborative development of vision, but recognized the difficulty of focusing shared vision. He noted that shared vision statements, for instance, often fail on account of length, fragmentation, and impracticality – not to mention clichés (Evans, 1996, p. 208). He also identified an organizational dysfunction he called *processitis*: "a preoccupation with procedure and interaction that affects many self governing groups" (p. 239). Fullan's *new*

professionalism captured many of the same solutions Evans suggested for dealing with such dysfunctions; it was "collaborative, not autonomous; open rather than closed; outward-looking rather than insular; and authoritative, but not controlling" (Fullan, 2001b, p. 265).

For Fullan (2001b), "professional development is not about workshops and courses; rather, it is at its heart the development of habits of learning that are far more likely to be powerful if they present themselves day after day" (p. 253). Several of these habits (or characteristics) of successful collaborative cultures include fostering diversity while trust building, provoking anxiety and then containing it, engaging in knowledge creation, combining connectedness with open-endedness, and even fusing the spiritual, political and intellectual (Fullan, 1999, p. 37). Also, like Evans, Fullan (1993) shared words of caution for those who would support collaborative learning. Collaboration, he notes, "is not automatically a good thing" (p. 82). In fact, "unless one understands deeply why and how collaboration functions to make a difference it is of little use" (Fullan, 1999, p. 40). Without focus (and moral purpose), collaboration may be little more than what Fullan (2005) and others have called "coblaboration" (p. 48).

It is clear from Senge, Evans, and Fullan's work that change agents who support personal learning must also support focused and purposeful collaborative learning if they hope to facilitate the sort of organizational change necessary to implement video games and simulations as educational technologies in constructivist learning environments. This collaborative learning must build shared vision and exhibit the characteristics of successful collaborative cultures, while avoiding the pitfalls such as *processitis* and *coblaboration*.

5. Develop Leadership

Fullan writes that he knows of no school that has improved without strong leadership (Fullan, 2001b, p. 141). Both personal and collaborative learning are necessary for organizational change, but even these two are not sufficient without strong leadership. Change agents who hope to bring about positive change in schools must also take steps to develop leadership at all levels of their organization. Senge, Evans, and Fullan each share in this belief.

Senge's (1990) thoughts on leadership began with a simple core strategy: "be a model. Commit yourself to your own personal mastery" (p. 173). However, Senge expected much more of a leader. He was interested in "leaders who have a sense of vision... [and] communicate that in such a way that others are encouraged to share their visions" (p. 212). The leader's new work, according to Senge, is to serve as a designer (of the ship, rather than as captain, p. 341), as a steward (p. 345), and –most importantly – as a teacher (p. 353). With regards to systems thinking, he believes that "leaders should especially focus on understanding the limiting processes that could slow or arrest change" (Senge et al., 1999, p. 8). With a focus on "leadership communities rather than hero-leaders" (p. 16), Senge et al. recommend developing leadership at all levels, including local line leaders (p. 16), internal networkers or community builders (p. 17), and executive leaders (p. 18). Under his new model of educational leadership, leaders are responsible for the engaging the members of the organization, providing systems thinking, and leading learning (Senge et al., 2000, p. 412-418).

Evans (1996) had a similar view of leadership, but he also dealt with the many chronic tensions that leaders must resolve in order to be successful, including managing versus leading (p. 148), resources versus demands (p. 149), the paradox of power – or the dependency of the leader on his followers (p. 150), symbolism versus substance (p. 151), and isolation in a

fishbowl, part of the personal toll of leadership (p. 151). Two capacities that leaders need to successfully balance these tensions "are marketing, to find out what constituents think and want, and public relations, to keep constituents informed about the school's own goals and needs" (p. 127). What Evans considered authentic leadership also demands integrity in action, personal ethics, vision, belief in others (p. 185), problem solving savvy (p. 190), clarity and focus (p. 206), participation without paralysis (p. 229), recognition of others (p. 254), and a willingness to avoid avoidance, even if confrontation is necessary (p. 272). In keeping with Fullan's focus on the moral purpose behind school change, Evans (1996) believed that such authentic leaders derive their authority from two sources, their professional position, and the moral force of their goals (p. 172-173). Further, he believed that "purpose and followership form the heart of transformational leadership" (p. 167). To cultivate both of these, he suggested "traditional management is to be replaced by shared governance and traditional teacher isolation by collaboration and collegiality" (p. 231). He later wrote "no task is more important for a school leader than to be... 'the voice of the covenant' - to take primary responsibility for nourishing, celebrating, and protecting the core values and behavioral norms of the school community" (p. 172). Ultimately, "staff must feel that the leader is committed to the change but also to them. Principals, then, need to expect the grief and tolerate the mourning" (p. 201).

Using the language of Senge, Fullan (1993), too, wrote, "the leader's new work for the future is *building learning organizations*" (p. 70). To do this, he believed that leaders need to display the personal qualities of hope, enthusiasm and energy (Fullan, 2003, p. 93), while acting from a mind set of "moral purpose, an understanding of the dynamics of change, great emotional intelligence as they build relationships, a commitment to new knowledge development and sharing, and a capacity for coherence making" (p. 93). He explained that:

> "Leadership, if it is to be effective, has to (1) have an explicit "making-a-difference" sense of purpose, (2) use strategies that mobilize many people to tackle tough problems, (3) be held accountable by measured and debatable indicators of success, and (4) be ultimately assessed by the extent to which it awakens people's intrinsic commitment, which is none other than the mobilizing of everyone's sense of moral purpose" (Fullan, 2001a, p. 20-21)

Effective leaders, according to Fullan (2001a), "listen effectively" (p. 123), "don't panic when things go wrong in the early stages of a major change initiative" (p. 124), and "mobilize the *collective capacity* to challenge difficult circumstances" (p. 136). Leaders need to be what Fullan (2005) calls *energy creators*: people who, among other things, "are enthusiastic and always positive… stimulate and spark others… and wish to improve on their previous best" (p. 37). Systems thinking also plays a roll in Fullan's philosophy on leadership; he calls for "developmental leaders (systems thinkers in action) who do not stand back and conduct passive analysis, but because of their immersion and system perspectives learn to size up situations quickly and intuitively, using concepts discussed in this book" (p. 102). However, effective leaders at the top of an organization cannot fulfill the need for leadership in an organization; "internal commitment... cannot be activated from the top... there must be many leaders around us" (p. 133). What is needed for successful and sustained organizational change is what Fullan calls *pervasive leadership,* "leadership at many levels of the organization" (p. 137). In fact, Fullan (2003) felt that "we should be selecting leaders in terms of their capacity to create the conditions of other leaders to flourish and make a continuing impact beyond our terms" (p. 106).

In order to provide the highest chances of sustainable success for any challenging change initiative, such as one that aims to integrate video games and simulations into a formal k12 learning environment, each of these elements of leadership should be developed in the organization. Change agents must be sure to develop *communities* of *pervasive leadership*, full

of leaders who exemplify the disciplines of personal mastery, vision building, and (especially) systems thinking. These leaders, particularly the formal leaders, should develop their authentic leadership style in order to successfully balance the many tensions of leadership, and they must work to build capacity for change by creating energy in others. If new educational technologies are implemented instead through top-down directive, the chance for failure of the initiative is high.

However, even if the realities of change are respected, personal and collective learning are supported, and leadership is developed, a change initiative such as the integration of video games and simulations in education will likely still be met with resistance in the organization. Change agents will also need to be prepared with strategies for overcoming organizational resistance.

Overcoming Organizational Resistance

A through review of Senge, Evans, and Fullan has revealed ten elements of school change that can be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment. Three of these elements relate to overcoming organizational resistance. These are to respect the realities of resistance, remember psychological factors, and sustain the process.

6. Respect The Realities of Resistance

Change agents who respect the realities of resistance will be more likely to successfully deal with and overcome challenges. Resistance is after all a healthy and necessary reaction to organizational change.

Resistance to change often occurs because the organization is exhibiting what Senge called a *learning disability*. Senge (1990) identified several learning disabilities, including "I am my position" (p. 18), "the enemy is out there" (p. 19), "the illusion of taking charge" (p. 20), "the fixation on events" instead of processes (p. 21), "the delusion of learning from experience... when our actions have consequences beyond our learning horizon" (p. 23), and "the myth of the management team," most of which engage in "skilled incompetence" rather than raising difficult questions and dealing with complex issues (p. 24). Senge also identified defensive routines (p. 237) as a force of resistance. Later, Senge et al. (1999) explicated ten challenges to implementing, sustaining, and rethinking change. The implementation stage may face the most challenges, including the lack of control over one's time, inadequate support, lack of relevance, and a lack of clarity and consistency from management (p. 26). Sustaining change faces the challenges of fear, anxiety, negative assessment of progress, isolation, and arrogance (p. 26). Even efforts to redesign or rethink change initiatives are challenged by the difficulties of balancing autonomy against chaos, diffusing innovations, and maintaining organizational strategy and purpose (p. 26). Familiarity with these disabilities and challenges will aid change agents in discovering and addressing the root cause of resistance.

With his focus on the human side of school change, Evans (1996) pointed out that "any transition engenders mixed feelings" and that "understanding these feelings is vital to the successful implementation of change" (p. 26). He dealt with change as loss (p. 28) and acknowledged that change challenges competence (p. 32), creates confusion (p. 34), and causes conflict (p. 35). Most importantly, he urged change agents to respect the fact that "ambivalence – especially… resistance - needs to be seen as part of the solution, not just part of the problem; it demands the attention and respect of all who seek innovation" (p. 38).

Fullan focuses on other obstacles and problems, including the problem of transferability. The obstacles to change are many, and each of them is a potential source of resistance. Obstacles identified by Fullan (2003) included lack of trust in teachers, lack of risk taking culture, lack of time, lack of leadership, lack of coherence, and the general lack of confidence, knowledge, and training (p. 78-80). He also identified overload, fostered dependency, loss of what has been gained, and the threat of recent accountability measures as additional obstacles (p. 78-80). The increasing threat of innovation overload and the observation that "schools and school districts do not have the capacity to sort out which programs to pursue, or even the capacity to say no in the face of innovation overload" (Fullan, 2001b, p. 27), is another problem that Fullan addressed, arguing again that a focus on the moral purpose behind the change is essential. Regarding the problem of transferring innovations from one context to another, he stated simply, "ideas acquired with ease are discarded with ease" (Fullan, 1999, p. 64). The capacity for transferability in a social system is a function of the quality of the infrastructure" (p. 75), including the capacities for continuous learning, generating accountability data, promoting feedback, and stimulating innovation.

Fullan also noted that "successful organizations don't go with only like-minded innovators; they deliberately build in differences" (Fullan, 2001a, p. 43). In keeping with Evans' thinking, Fullan (2001a) recommended instead that "we need to respect resisters [because]… they sometimes have ideas that we might have missed, especially in situations of diversity or complexity or in the tackling of problems for which the answer is unknown" (p. 42). Also, "resisters are crucial when it comes to the politics of implementation... being alert to differences of opinion is absolutely vital" (p. 42).

Change agents who are attempting to overcome resistance to new educational technologies, such as video games and simulations, must therefore respect not only resistance, but also those who resist. They must endeavor to build the capacity necessary to properly deal with such resistance in addition to other obstacles, problems, and challenges that resist change, including organizational learning disabilities. This will require a deep understanding of organizational change on the part of the change agents, which must be pursued through continuous learning on their part, and which must be diffused throughout the organization through continuous sharing with others. Significant or fundamental change will not happen quickly and will not happen without resistance. Those who are frustrated and give up in the face of resistance, rather than respecting this reality, will not be successful.

7. Remember Psychological Factors

Evans (1996) warns, "when we are trying to understand people's resistance to change, it is never just the logical we are dealing with but the psychological" (p. 26). Change agents who are able to heed this warning will be better able to cope with resistance to organizational change.

Many organizational change theorists, including Evans, cite Senge's (1990) seven degrees of support for change initiatives (p. 219-220). The possible attitudes that an individual can have toward a change initiative Senge sorted into three categories, which can be described as committed, compliant, and noncompliant. Within the committed category, people can be truly committed, or merely enrolled, in which case they still *want* the change to happen. Within the compliant category, people can be genuinely compliant, formally compliant, or grudgingly compliant depending on the degree to which they see the benefits of the vision. Finally, in the noncompliant category, people can be noncompliant, or even simply apathetic about the change.

Being able to understand where members of an organization fit on this scale, and how they might be moved, is important for a change agent to be successful.

In order to help people move toward greater commitment, change agents would do well to reject "easy optimism" (Evans, 1996, p. xiv); it only raises hopes and encourages later frustration when the inevitable challenges appear. Instead, Evans suggested, "a genuine respect for the sober realities of experience is crucial to success" (p. xv). He called for change agents to "counter naive assumptions... [because] reform, if it is to succeed, must accept the realities of human nature" (p. 51). He acknowledged that change agents must "straddle a fault line between pressure and support, change and continuity" (p. 58). But this balance is critical. Members of an organization must trust a change agent or leader. As Evans pointed out, "people assess the desirability of any change not just by its 'what' but also by its 'who.' A change proposed by someone we trust and respect is more credible than it would be if proposed by someone we distrust" (p. 83). Therefore, "mistrust is a primary issue that must be resolved first" (p. 126). In general, "change must be accompanied by a high degree of both psychological safety and professional safety. Without this, change is unlikely, no matter how intensely people are pressured to alter their practice" (p. 86).

This sort of psychological safety must permeate the culture of the organization, especially during professional development efforts. Evans (1996) explained that "to help teachers develop new competence, training must be coherent, *personal*, and continuous" (p. 63, emphasis added). Furthermore, "training must include continuing opportunities for teachers to consider, discuss, argue about, and work through changes in their assumptions. Without this, the technical changes they are exposed to during training are unlikely to make a deep, lasting impact" (p. 65). Even outside of training, Evans suggests "personal contact that is oriented toward both task

performance and emotional adjustment rather than just one or the other facilitates staff progress from loss to commitment" (p. 62). Such progress is essential to change efforts; as Evans says, "building of commitment among a critical mass of staff ranks among the most important goals change agents can set for themselves" (p. 69).

Later Evans (2004) summarized "five early steps... to help reduce resistance and build commitment among teachers" (p. 201-203):

- Join the early resistance rather than try to override it.

- Identify (rather than hide) weaknesses in the school's own functioning.

- Refrain from demonizing students or parents or exaggerating an 'us versus them dichotomy.'

- Present the situation as 'pay me now or pay me later.'

- Make a strong personal commitment.

- Leave lots of time for questions.

Most importantly, Evans (1996) concluded that "of all the factors vital to improving schools, none is more essential - or vulnerable - than hope" (p. 290).

Fullan (2001b), too, felt that "real change then, whether desired or not, represents a serious personal and collective experience characterized by ambivalence and uncertainty" (p. 32). He went on to say that "the anxieties of uncertainty and the joys of mastery are central to the subjective meaning of educational change, and to success or failure thereof - facts that have not been recognized or appreciated in more attempts at reform" (p. 32). He, like others, notes that "*restructuring*... occurs time and time again, whereas *reculturing* (how teachers come to question and change their beliefs and habits) is what's needed" (p. 34). In this respect, he considers innovation a multidimensional undertaking, including new materials (such as video games and

simulations), new teaching approaches (such as constructivist pedagogy) and new beliefs (such as perceptions of the value of video games or constructivism) (p. 39, 43, 46).

Fullan (2001a) placed "a premium on understanding and insight rather than on mere action steps" (p. 46). Like Evans, Fullan believed that "collegiality, caring, and respect are paramount" (p. 57). He elaborated on this, writing that "a culture of caring... is vital for successful performance... in five dimensions; mutual trust, active empathy, access to help, lenience in judgment, and courage" (p. 82). He also knew that "leading in a culture of change means creating a culture (not just a structure) of change… [that produces] the capacity to seek, critically assess, and selectively incorporate new ideas and practices" (p. 44). However, the leader or change agent should also remember that they, too, are human, and be sure to "seek sources and situations that push the limits of their energy and engagement, coupled with rituals or periodic breaks that are energy recovering" (Fullan, 2005, p. 35).

Resistance to organizational change is inevitable, but change agents responsible for the integration of video games and simulations as constructivist learning environments will cope with the inevitable more productively if they remember psychological factors. They will be able to move members of their organizations toward enrollment and commitment by building trust and psychological safety. This is the only route to truly reculturing an organization.

8. Sustain the Process

Any effort a change agent puts into facilitating organizational change or overcoming resistance to change is lost if the changes, or more importantly the change process, cannot be sustained. "Sustainability," says Fullan (2005), "is the capacity of a system to engage in the complexities of continuous improvement consistent with deep values of human purpose" (p. ix).

Senge, Evans, and Fullan each had a great deal to offer on the subject of continuous improvement.

Senge (1990) suggested the concepts of openness, localness, and balance were important to sustained change initiatives. Openness was a call for leaders to invite members of the organization to participate and reflect openly (p. 276-277) in the change making process, to let go of the illusion of their own certainty (p. 281), and to "make information more transparent" (Senge et al., 1999, p. 455). Similarly, localness referred to the need for leaders to achieve control without controlling (Senge, 1990, p. 297, 292) and to give up the illusion of being in control (p. 292), by allowing decisions to occur at the lowest level of the hierarchy as possible. Balance, then, referred to the need to allow members of an organization to make healthy choices even in stressful times (Senge et al., 1999, p. 48), to at the very least end the war between work and family (Senge, 1990, p. 360).

Within these constraints, Senge (1990) recommended creating time for learning within organizational structures (p. 302-305). He also recommended establishing a pilot group in the early stages of a change initiative (Senge et al., 1999, p. 39). This would be an excellent opportunity to follow Senge et al's (1994) steps for breaking through organizational gridlock by identifying problem symptoms, mapping quick fixes, identifying undesirable impacts, identifying fundamental solutions, mapping addictive side effects of quick fixes, finding interconnections to fundamental loops, and identifying high leverage actions (p. 169-172). Senge et al. (1999) also offer these five strategies for sustained change:

- Don't push too hard for growth (p. 61).
- "Looking ahead to identify the most significant challenges facing you, the sources and nature of that resistance, and its potential impact on your group" (p. 62).

- Think about the future today (p. 62).

- Conduct experiments (p. 63).

- Reset the goals by examining your mental models (p. 63).

- Trust yourself (p. 64).

For his part, Evans (1996) recommended that "planning should not be objective, linear, and long range - but rather pragmatic, adaptable, and medium range" (p. 7). He rejects what he calls hyperrational planning in favor of "pragmatic, adaptable approaches that acknowledge the nonrational, unplannable aspects of an organizational life and the importance of being ready to respond to external change" (p. 14), and he recommends that leaders rely "on experience and intuitive judgment in decision making" (p. 15). Like Senge, Evans too recommends making time for learning; he points out that it is common in business to dedicate 5% of an employee's time to professional development, which in education "would amount to nine or ten days per teacher per year" (Evans, 1996, p. 137).

Fullan (2005) acknowledged, "centrally driven reforms can be a necessary first start... but can never carry the day of sustainability" (p. 7). Several lessons of implementation that Fullan has shared are relevant as well. For instance, professional development is key, evaluation – early and often – is critical, and accountability systems are necessary (Fullan, 2001b, p. 73). Fullan (2005) also hit on the fact that "there is no chance that large-scale reform will happen, let alone stick, unless capacity building is a central component of the strategy for improvement" (p. 10-11). Capacity building "is not just workshops and professional development for all. It is the daily habit of *working together*, and you can't learn this from a workshop or course" (p. 69). Teachers need personal contact for this to happen, "one-to-one and group opportunities to receive and give help and more simply to *converse* about the meaning of change" (Fullan, 2001b, p. 124). Perhaps

the most important part of capacity building, what Fullan (2005) calls "the essence of *Leadership and Sustainability* [is] the deliberate fostering of developmental leaders who act locally and beyond, all the while producing such leadership in others" (p. 51). Fullan (2001b) also concluded that coherence-making "is the key to dealing with the nonlinear fragmented demands of overloaded reform agendas" (p. xi), and he recommended the simple strategy of "win small, win early, win often" (Fullan, 2001a, p. 33).

If change agents responsible for integrating video games and simulations into educational institutions are able to implement these strategies for sustainability, they will be better able to facilitate organizational change and overcome organizational resistance in the long run. The technologies will have a better chance of being used, becoming a part of structure of future schools, and making a difference in teaching and learning.

Integrating Organizational Change With Society

A thorough review of Senge, Evans, and Fullan has revealed ten elements of school change that can be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment. The last two of these elements relate to integrating organizational change with the surrounding society. These are to include family and the community, and to effect positive social change.

9. Include Family and the Community

Schools do not exist – and school change does not happen – in isolation. Change agents working to integrate educational technologies such as video games and simulations into a school, must consider not only the changes necessary in the school, but the effect that these changes will

have on the community. There may even be changes necessary in the community for the project

to be successful, or the project may need to allow changes to accommodate the needs of the

community.

Senge et al. (2000) recognized this interconnectedness of the school and community

when they suggested that "the single most powerful thing that a community can do is to provide

children with high-quality preschool experiences from birth through age five" (p. 309).

Conversely, they believed that faculty and students must make a commitment to their

communities (p. 320), and they encouraged changes in the school that might influence positive

changes at home (p. 421). Senge (1990) wrote about learning organizations. Senge et al (2000)

applied this idea to communities, writing that "all communities can learn" (p. 461), a process in

which schools can play an important part. They also offered strategies for a family-supported

school (p. 535-536), including the need for collaborative leadership and for caring classrooms

that improve children's learning while enhancing teachers' and parents' efficacy - goals that must

be kept in mind even when integrating new educational technologies, such as video games.

Evans (2004) pointed out that "the ever-escalating pace of change that brings

unprecedented opportunities also invalidates traditional certainties, the continuity on which

childrearing has always depended" (p. xviii). In turn he argued that schools

> "Need to rethink the ways they have been addressing the changing nature of
> students and parents. This will not be a matter of simply improving their
> traditional efforts... but of fundamentally reshaping the experience of membership
> in the school community and the relationship between the school and the family"
> (Evans, 2004, p. xiv-xv).

In keeping with his philosophy on organizational and educational change, Evans (2004)

believed these childrearing dilemmas "will not yield to quick fixes" (p. 143). Even so, he

proposed "practical steps educators can take to be helpful, not only to their academic mission but

to the lives of parents and students directly" (p. 144), and he called for educators to "think more strategically about structuring the entire experience of membership in the school community" (p. 144). He asks "How can we imagine any *broad, significant, enduring* improvements in school outcomes without a corresponding improvement in the family as a 'readier' and 'sustainer' of students?" (p. 158). The answer, according to Evans, begins with " perspective, not programs" (p. 159) and "requires a systematic effort to build and sustain consensus throughout the school community about two key facets of school life: purpose and conduct - core values and basic responsibilities" (p. 160). He stressed the role of parent education in this process (p. 161-162) and he believed in the importance of parent involvement in the life of the school, and in the lives and learning of their children (p. 184, 187). Ultimately, he found that

> "The schools that encounter the fewest boundary-breaking problems and preserve the best relationships with their families are those that are the clearest about what they stand for (purpose) and what it means to be a part of their school community (conduct)... [because] true community cannot exist without these kinds of shared understandings" (p. 165).

Fullan also agreed that communities and schools can and should influence each other. He cites Senge's (1990) concept of the "'divisible whole', the realization that the earth is both small and of utmost significance to us" (Fullan, 1993, p. 98). He also firmly believed that "*the closer the parent is to the education of the child, the greater the impact on child development and educational achievement*" (Fullan, 2001b, p. 198). He shared from his experiences and his research that "teachers in moving schools [schools successfully implementing changes] saw parents as part of the solution" (p. 201). He also related that "researchers still find parent involvement as a crucial and *alterable* variable regardless of parents' education and ethnic background" (p. 207), and suggested that "it is only when the majority of teachers are

collaborating with the majority of parents that any sizable impact on student learning will occur"
(p. 202). He even provided guidelines for parents, including:

1. Press governments to create the kind of teachers you want.

2. Leave nostalgia behind you.

3. Ask what you can do or your school as well as what your school can do for you.

4. Put praise before blame. (Fullan, 2001b, p. 214)

Only a learning community will be able to adapt to the changes necessary to for using
video games and simulations as part of a constructivist learning environment in schools. Change
agents need to be clear about the purpose behind the changes they propose, and they need to
focus first on building the capacity of their communities to understand and adapt to the necessary
changes. By following the advice of Senge, Evans, and Fullan, they can increase the likelihood
their initiatives will be successful.

10. Effect Positive Social Change

Not only does school change not happen in isolation, but also it is not an end in itself.
Schools have been created to serve the greater good, and any school change initiative – even the
adoption of new educational technologies such as video games and simulations – must also serve
to better society. In essence, any effort to change a school for the better should be part of a
greater effort to effect positive social change. Senge, Evans, and Fullan all supported the roll of
school change as a forge for social change.

Senge et al. (2000) were interested in the moral dimensions of schooling. They
acknowledged, "the primary goal of public schools is to educate children for the responsibilities
of citizenship in a democracy" (p. 317). In addition they feel that educators should not only

provide "access to knowledge," but also "nurturing pedagogy" and "responsible stewardship of schools" (p. 280). They also resisted the trend toward standardized rote education, arguing that school is not meant merely for making people civic-minded, keeping kids off the streets, or even providing students with information; instead, they argued for a more constructivist approach of spending "ten years grappling with evidence, because so much of science is counterintuitive" (p. 559).

Evans (1996) advocated "an approach to change that emphasizes people's need to find meaning in their life and work and the role of the school in providing that meaning" (p. xiii). He also believed that all teachers have at one time harbored "an urgent belief in the possibility of enormous social change" (p. 110), and he sought to tap into this as a motivation for school change.

Fullan, with his focus on the moral imperatives of school change, spent more time on this topic than Senge and Evans. He explained "*moral purpose* means acting with the intention of making a positive difference in the lives of employees, customers, and society as a whole" (Fullan, 2001a, p. 3). Like Senge and Evans, Fullan (2001b) believed that "a strong public school system is necessary for a strong democracy, ... [and that] the public system is weakening rather than getting stronger and that is a *system* problem, that is, a societal problem" (p. 212). He felt that "the best case for public education has always been that it is a common good" (Fullan, 2003b, p. 3). Furthermore, he suggested, "developing… capacity [for change in schools] means understanding the relationship between democracy and the public school system" (Fullan, 1999, p. 11). In keeping with his constructivist tendencies, he was concerned with "the unfinished legacy of John Dewey... [because] Dewey never addressed the problem of how… a public school system could develop let alone thrive in a society that it was to help make over" (Fullan, 1999, p.

10). Part of Fullan's (1993) answer was that "individual moral purpose must be linked to a larger social good" (p. 38). Similarly, for Fullan, school change efforts "must be linked to a broader social, public purpose" (p. 11). Ultimately, he believed that "those engaged in education reform are those engaged in societal development" (Fullan, 1999, p. 84), and that "the ultimate aim of education is to produce a learning society, indeed a learning globe" (Fullan, 1993, p. 135).

Fullan saw pragmatic benefits to this focus on social change. He considered the public "a third ally - in addition to policymakers and educators - not yet mobilized" (Fullan, 2003, p. 15). He also knew that "organizations must be actively plugged into their environments responding to and contributing to the issues of the day... [at least in part because] expectations and tensions in the environment contain the seeds of future development" (Fullan, 1993, p. 39). More importantly, he knew that "the reason that the twin forces of greater knowledge and greater moral commitment beyond individuals are related to sustainability is that they begin to improve the social/moral environment" (Fullan, 2003, p. 19). Perhaps most importantly, though, he wrote that "there is nothing more satisfying than seeing hordes of people engaged to do good together because of the leadership you helped produce" and he encouraged readers, writing "don't give it another armchair thought" (Fullan, 2005, p. 104).

Those enterprising and risk-taking change agents who are already implementing video games and simulations as educational technologies are exemplifying Fullan's 'just do it' philosophy, especially those who are a part of the *serious games* and *games for change movement*. As others attempt to replicate the success of these early adopters, they must keep in mind the moral purpose behind the changes they propose, and they must be sure they are introducing new technologies not for their own sake or for any other reason other than to effect positive change in society.

Conclusion

Based on the works of Senge, Evans, and Fullan, a working theory of school change has been presented in three sections: *Facilitating Organizational Change*, *Overcoming Resistance to Organizational Change*, and *Integrating Organizational Change with Society*. Within these three sections, ten principles of school change were presented. Five principles of school change related to *Facilitating Organizational Change*: respect the realities of change, use systems thinking, support personal learning, support collaborative learning, and develop leadership. Three more principles related to *Overcoming Resistance to Organizational Change*: respect the realities of resistance, remember psychological factors, and sustain the process. Finally, the last two principals related to *Integrating School Organizational Change with Society*: include family and community, and effect positive school change. These principles can, and should, be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment.

Even with these guiding principles to aid them, change agents will need to engage in an ongoing study of organizational change. What Senge et al. 1999 called "the dance of change" or "the inevitable interplay between growth processes and limiting processes" (p. 10) will continue to be a chaotic and unpredictable process. However, armed with these ten principles and a growing knowledge of the realities and complexities of change, change agents can help ensure that the future of educational change will include the use of systems thinking, a reduction in the fragmentation of curriculum, and a more productive "dialogue between parents, bureaucrats, administrators, teachers, students, and government leaders" (Senge et al., 1994, p. 491-192).

Evans cautions that "the education community needs to... get off the 'moral hook of promising more than it can deliver' and 'increase public understanding of why the problems in

schooling... are and will be so vexing'" if significant change is going to be possible and sustainable. Still, as Fullan, Hill, and Crevola (2006) wrote, "nothing, and we mean nothing, is more critical to the future of the world than rapidly and constantly improving systems of public schooling that serve all students" (p. 100). Change agents who want to play a roll in creating such a system must take the risk of putting these ten principles into action and then working to improve their understanding of change processes and to improve upon this preliminary theory of school change.

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DEPTH

Introduction

The breadth portion of this Knowledge Area Module (KAM) synthesized the work of Senge, Evans, and Fullan to produce a preliminary working theory of school change that can be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment. To further develop the preliminary working theory, this depth portion of the KAM will present a synthesis of prominent theories on professional learning communities (PLCs), learning organizations in which educators work collaboratively to "create a community of commitment" (DuFour and Eaker, 1998, p. 15) to ongoing positive school change. Prominent theorists who will be included in this examination are DuFour & DuFour (and their colleagues), Wald & Castlebury, Huffman & Hipp, Roberts & Pruit, Hord, and Stone & Cuper.

The work of the authors discussed in the breadth portion laid the foundation for professional learning communities and was influenced by the literature on professional learning communities. Senge et al. (1994) were interested in "redefining organizations as communities" (p. 507), and later wrote about the importance of "informal networks and professional communities" (Senge et al., 1999, p. 49) and "communities of practice" (Senge et al., 1999, p. 477-480). For Senge et al, "communities of practice are *not defined*. They have no names, no formal memberships, and no status. But they move information" (p. 478). The professional learning communities discussed below are an attempt to formalize these communities of practice. By 2000, a reverse influence was apparent; the communities Senge et al. called for were beginning to sound a lot like the DuFours' professional learning communities (Senge et al., 2000, p. 326-328 & 330-331). Evans alluded to the DuFours' as early as 1996 when he wrote

that "many experts insist on a distinction: mission refers to basic purpose, vision to future direction, and core values to underlying beliefs and guiding principles" (p. 207). Fullan then referred to professional learning communities explicitly and frequently from 1999 to 2006 (Fullan, 1999, p. 31 & 32; Fullan, 2001a, p. 64; Fullan, 2001b p. 91, 147, 149, 159, 165, 180, 259, 269, 270, 272; Fullan, 2003, p. 9; Fullan 2006, p. 9, 93). In 2006, Fullan even mentioned Richard DuFour by name in his acknowledgements (p. xix).

In fact, DuFour and DuFour, and their frequent co-author, Eaker, might be considered the most influential authors in the field of professional learning communities. They also cited Senge and Fullan frequently and consistently (DuFour and Eaker, 1998, p. xiii, 9, 13, 24, 27, 29, 50, 63 105, 182, 235; DuFour, DuFour, Eaker, Karhanek, 2004, p. xiv; DuFour, Eaker, & DuFour, 2005, p. 9). In response to decades of disappointing school reform efforts, DuFour and Eaker (1998) offered professional learning communities as a new model for school change. This model included building the foundation of a professional learning community, sustaining the school improvement process, and embedding change in the culture of a school and its surrounding community. Eaker, DuFour, and DuFour (2002) offered additional resources for those schools just beginning the process of establishing a professional learning community. In 2004, DuFour, DuFour, Eaker, and Karhanek focused their efforts on how professional learning communities respond when kids don't learn. (Later, they would also focus on how to respond when students already know what teachers want them to learn. DuFour, DuFour, & Eaker, 2006, p. 2). In 2005, DuFour, DuFour, and Eakers edited a volume of essays written by colleagues whose experiences illustrated the power of professional learning communities.

In addition to the DuFours and their colleagues, there are many other authors contributing to this field. Wald and Castleburry (2000), who also cited Senge often, focused on educators as

learners in their volume on creating a professional learning community in a school. Huffman and

Hipp's (2003) contribution on reculturing schools as professional learning communities

discussed the challenges of developing PLCs from initiation to implementation and beyond, and

included several case studies. This volume also cited DuFour and Eaker as well as Senge, Evans,

and Fullan. In 2003, Roberts and Pruitt, who cited both Senge and DuFour, published a

collection of collaborative activities and strategies for professional development in schools that

function as professional learning communities. Like Roberts and Pruitt, Kaagan (2004), who

cited Senge and Fullan, released a collection of thirty reflective staff development exercises for

educators, which were also ideal for professional learning communities. Hord, another influential

theorist in the field, edited a volume of essays in 2004 focused on changing schools through

professional learning communities, and particularly through collaborative learning and leading.

The contributing authors also cited Senge and the DuFours. Most recently, Stone and Cuper

(2006) offered additional best practices for teacher leadership in their book exploring what

award-winning teachers do for their professional learning communities.

Constructivism and 21ˢᵗ Century Skills

Like Senge, Evans, and Fullan, each of the authors discussed in this portion of the KAM

also explicitly or implicitly supported the development of constructivist learning environments

and the development of 21ˢᵗ Century Learning Skills as the ends for their means of school

change. Just as Fullan did, Wald and Castleberry (2000) cited Dewey often, as did Huffman and

Hipp (2003). In keeping with Dewey's philosophy, DuFour and Eaker (1998) believed that

"engagement and experience are the best teachers" (p. 27). These authors also believed that a

context for learning was important; for instance, Roberts and Pruitt (2003) were interested in

"job-embedded professional development strategies" (p. 55). DuFour, DuFour, and Eaker (2006) were also explicit about their support of *inquiry-based* learning, or what they called "collective inquiry: the process of building shared knowledge by clarifying the questions that a group will explore together" (p. 21), and Wald and Casselberry (2000) believed that "inquiry into underlying assumptions deepens the learning process" (p. 9). The element of *collaboration* was also important; Huffman and Hipp (2003) included collective learning (p. 9) as one of their "five dimensions characteristic of schools with successful professional learning communities in place" (p. 6), and Roberts and Pruitt (2003) noted, "collaboration is the vital factor in the development and maintenance of professional learning communities" (p. 137). *Reflection*, too was an element of constructivism well supported by these theorists; Kagaan's (2004) contribution, for example, was focused on the power of reflective exercises, and DuFour and Eaker (1998) explained that "reflection and dialogue were... essential to the workings of the school" (p. 37). These authors also promoted the sorts of twenty-first century skills often promoted by constructivist educators. DuFour, Eaker, & DuFour (2005) believed that "everyone needs to graduate from high school with adequate skills for functioning in the 21st century workplace" (p. 103), and many of these authors supported a culture of risk taking, because "in an organization that prizes learning, risks cease to be threatening, and people can learn powerful lessons form success and failure" (Wald & Castleberry, 2000, p. 24).

Facilitating Organizational Change

Each of the authors introduced in the previous section is a prominent theorist in the field of professional learning communities. The implementation of professional learning communities in keeping with their philosophies can greatly improve the efficacy of school change efforts.

Therefore, in order to further develop the preliminary working theory of school change presented in the breadth portion of this KAM, a thorough review was conducted of these professional learning community theorists as well. This review has revealed ten elements of school change that can be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment. Some of these elements are very similar to those presented in the breadth portion, however others are new elements that can be used as a guide to the implementation of new educational technologies, such as video games and simulations, in schools. The first five of these elements relate to facilitating organizational change: respect the realities of change; establish mission, vision, values, and goals; focus on what's important; develop leadership; and, develop teaching.

1. Respect the Realities of Change

To be successful, change agents must respect that organizational change is a complicated, difficult, and time-consuming process – especially in an educational institution. This was illustrated by the work of Senge, Evans, and Fullan in the breadth portion of the KAM. This premise is further supported by the work of leading professional learning community theorists.

The DuFours and their co-authors expressed the complex nature of change in many ways. DuFour and Eaker (1998) reviewed the failures of previous school change efforts including A Nation at Risk, the excellence movement, Goals 2000, and the restructuring movement (p. 1-9). They also reviewed the failures of the industrial age educational system in general (p. 19-23). Their conclusion was that this system, and the efforts to reform it, have failed "for a number of reasons: the complexity of the task, misplaced focus and ineffective strategies, lack of clarity on the intended results, failure to persist, and lack of understanding of the change process" (p. 17).

DuFour and Eaker knew that school change was a messy and unpredictable process; they considered "problems and conflict... [to be] the inevitable byproducts of serious reform" (p. 49). They believed that "if schools are to be significantly more effective, they must break from the industrial model upon which they were created and embrace a new model that enables them to function as learning organizations" (p. 15), which they prefer to characterize as professional learning communities. DuFour, Eaker, and DuFour (2005) believed that changing an organization is not a matter of top-down directives, but rather that "changing an organization begins with changing the *conversation* within the organization" (p. 183). And, like Senge, they believed that the skills of systems thinking would play an important role in making sense of the complexity inherent in the change process (p. 94, p. 218).

Other authors writing about professional learning communities noted similar complexities in the process of facilitating organizational change. Wald and Castleberry (2000) discussed what they call "the roller coaster of change" (p. 42), a process which at its best is still an emotional journey of getting aboard, generating a vision or idea, encountering constraints, experiencing despair, entering into dialogue, engendering hope, planning, taking action, and finally getting results. The path is neither an easy one nor a straight one. Huffman and Hipp (2003) consider how many elements are necessary in order to provide the right supportive conditions for school change; these include caring relationships, trust and respect, recognition and celebration, risk-taking, a unified effort to embed change in the culture of the school, resources (such as time, money, materials, and people), facilities, and communication systems (p. 144). Lists of necessary conditions cannot only begin to capture the nuances of organizational change; as Roberts & Pruitt (2003) point out, "meaningful and continuous conversation among teachers about their beliefs, their teaching, their learning, and what they have learned about

teaching is necessary for teachers to develop into a community of learners and leaders" (Kruse, Louis, Bryk, 1995, as cited in Roberts & Pruit, 2003, p. xi) capable of successful school change. Hord's (2004) model for professional learning communities includes such diverse and complex elements as "supportive and shared leadership, shared values and vision, collective learning and application of that learning, supportive conditions, and shared personal practice" (p. 1). Kagaan (2004) points out that even if such elements are formalized, there is still a "distinction between theories-in-action and espoused theories - the differences between what school professionals really do and how they really interact, as opposed to what the mission statement mounted on the wall of the school foyer says about what they do and how they interact" (p. 4). Kagaan was writing about the oft noted difference between theory and practice. Ultimately, team work in a professional learning community is daunting; members of the community must show respect for each other, keep an open mind, talk about difficult issues, be flexible, and be clear (Stone & Cuper, 2006, p. 9-11).

A change agent attempting to integrate constructivist pedagogy or new educational technologies, such as video games and simulations, into a school will encounter all of these levels of complexity as well. The challenges of introducing new teaching techniques and new technologies to a school are largely the same challenges that professional learning communities are designed to overcome. The efforts of change agents will be much more fertile in an environment characterized as a professional learning community than in traditional school structures. To some degree, a change agent hoping to introduce a new technology such as video games into a school would do well to help the school build its capacity as a professional learning community in order to increase the chances of success with their initiative.

2. Establish Mission, Vision, Values, and Goals

Establishing a professional learning community (PLC) is important to the success of school change initiatives, and a critical step in establishing a PLC is to generate a shared sense of mission and vision as well as shared values and goals.

In order for any large-scale or long-term change to be successful in an educational institution, the organization must have a sense of mission, or what DuFour and Eaker (1998) also called a shared "sense of purpose" (p. 59). This is not unlike the imperative of moral purpose that Fullan called for (in the breadth portion of this KAM). According to DuFour and Eaker (1998), a school mission statement must answer the question "why do we exist?" (p. 58). Eaker, DuFour, and DuFour (2002) described the need for a cultural shift from generic mission statements to specific "statements that clarify what students will learn... how we will know what the students are learning... [and] how the school will respond when students do not learn" (p. 13). Roberts and Pruitt (2003) stated this economically when they explained, "a mission statement is a brief, succinct statement that explains the purpose for which a school exists" (p. 30). Without such a mission statement it would be impossible to know whether or not a change initiative, such as the implementation of video games and simulations as constructivist learning environments would help the school achieve its purpose.

The vision statement, then, answers the question "what do we hope to become? Whereas mission establishes an organization's purpose, vision instills an organization with a sense of direction" (DuFour and Eaker, 1998, p. 62). Roberts and Pruitt (2003) described a shared vision as "a shared image of what you desire your school to look like in the future" (p. 30). DuFour and Eaker suggested that the process of crafting a vision statement include representatives of the school, district, parents, community, and local businesses (p. 67). Roberts and Pruitt (2003)

agreed, noting that it is particularly "important that teachers be involved from the inception of the vision building process if they are to share in and commit to putting the vision into practice" (p. 30). DuFour and Eaker (1998) cautioned, though, that "informed decisions require informed groups and individuals" (p. 69) who are "operating from a research base" (p. 70). If a diverse selection of stakeholders is to be responsible for a school vision, school leadership must invest in building the representatives' capacity for vision building. Eaker, DuFour, and DuFour (2002) also described the need for a cultural shift from "average statements (or wish lists) that are dictated (or developed by a few) and that are often ignored to... statements that are research based, credible, focused on essentials, used as a blueprint for improvement, and widely shared through broad collaboration" (p. 14). Huffman and Hipp (2003), inspired by Hord's model (discussed in the previous section of this KAM) included shared vision in their model of the professional learning community as well. Once the vision is established, it should play "a significant role in all aspects of the daily work life of a principal and its importance should be reflected in the principal's behavior" (Roberts & Pruit, 2003, p. 36). As Wald and Castleberry (2000) wrote, "to sustain this communal energy and hope, the leader must hold the vision high for all to see, constantly revisit it, expand on it, and continuously help members of the community connect with it and find ways to personalize it and make it their own" (p. 20). This is especially true – imperative even - for change agents who are helping educators learn to use new technologies, such as video games and simulations, to improve learning in their schools.

Values are even more specific than mission and vision statements. DuFour, and Eaker (1998) explain that "while a mission statement asks the school to consider *why* it exists, and a vision statement asks *what* it might become, a statement of core values asks people to clarify *how* they intent to make their shared vision a reality" (p. 88). Despite the increased specificity,

they recommend that schools write value statements that are few in number, brief, linked directly to the vision statement, and focused on behavior (rather than beliefs) – and on the school (rather than others, such as parents or the district) (p. 95-97). Later, Eaker, DuFour, and DuFour (2002) described the need for a cultural shift from "from values that are random, excessive in number, articulated as beliefs, an focusing on the self to... values that are linked to vision, few in number, used as a blueprint for improvement, and are articulated as behaviors and commitments" (p. 16). Huffman and Hipp (2003), inspired by Hord's model (discussed in the previous section) also included shared values in their model of the professional learning community. Wald and Castleberry (2000) identified "the next challenge of leadership… making visible these mutually held values and beliefs" (p. 22), and this is as much a challenge for an educational technologist as it is for a principal.

Finally, goals describe what steps will be taken and when (DuFour and Eaker, 1998, p. 100). DuFour and Eaker noted that it is especially important that "a school improvement plan must be attentive to *creating* some clear, discernible victories, not just hoping for them" (p. 101). They went on to explain, "effective goals will specify:

- Exactly what is to be accomplished
- The specific steps that will be taken to achieve the goal.
- The individual or group responsible for initiating and/or sustaining each step toward achieving the goal.
- The timeline for each phase of the activity
- The criteria to be used in evaluating progress toward the goal." (DuFour and Eaker, 1998, p. 101-102)

Again, Eaker, DuFour, and DuFour (2002) described the need for a cultural shift:

"From statements that are random, excessive in number, focused on means rather than ends, impossible to assess or measure, and not monitored, to... statements that are linked to the vision, few in number, focused on desired outcomes, translated into measurable performance standards, monitored continuously, and

designed to produce short-term wins and also stretch aspirations" (Eaker, DuFour, &DuFour, 2002, p. 17)

For Wald and Castleberry (2000), it was important that "members of the [professional learning] community are aligned around common goals" (p. 4). Huffman and Hipp (2003) identified "a set of attainable reform goals with long time lines for accomplishing them" (p. 4) as one of the characteristics of reforms with the most promise. Hord (2004), too, called for "clear goals for high-quality learning" (p. 12) as part of her model for professional learning communities.

An educational technologist or change agent responsible for the integration of video games and simulations into the learning culture of a school must offer this level of specificity and guidance in order for their visions (or more importantly, the school's shared vision for these technologies) to be realized. Each of these levels, mission, vision, values, and goals, must be addressed for a change initiative to have the best chance of success. Naturally, this will be most likely if the school has already developed the culture of a professional learning community.

3. Focus on What's Important

School change of any kind involves so many variables, it is imperative that change agents focus on what is important. This ability to focus only on what is important is also a critical characteristic of successful professional learning communities.

DuFour and Eaker (1998) pointed out that "schools communicate what is important to them and what is valued by what they focus on" (p. 107). For instance, celebration, which plays an important role in sustaining a professional learning community, "reinforces shared values and signals what is important" (p. 143). However, this focus is also more than just a tool for clear communication. Eaker, DuFour, and DuFour, 2002, described a cultural shift in professional

learning communities from "a focus on a wide variety of things and an effort to 'get the plan turned in' and then subsequently ignoring it to... a focus on a few important goals that will affect student learning... a vehicle for organized, sustained school improvement" (p. 24). This cultural shift is not limited to the organization; Hord recommended "recruiting external change agents who can ask the important questions" (p. 149) as a part of establishing and maintaining organizational focus.

Most importantly, professional learning community theorists call for schools to focus on student learning. DuFour and Eaker (1998) assert that "the curriculum is a critical component of a school that functions as a professional learning community" (p. 178) and that "the curriculum should reduce content and enable all parties to focus on essential and significant learning" (p. 179; see also Eaker, DuFour and DuFour, 2002, p. 19). Huffman & Hipp (2003) expressed a different but related take on this focus, saying that a professional learning community "focuses, first and foremost, upon learning on the part of professionals in the school as the way to increase learning on the part of students" (p. 76). Roberts and Pruitt (2003) agreed "the ultimate purpose of the movement to the learning community model is to improve learning opportunities and outcomes for students" (p. 11). They also believed that "the primary focus of professional development is student outcomes; it is results driven and focused on curriculum and standards" (p. 52). As she explained the importance of developing collective values and visions, Hord (2004) described the importance of becoming student focused (p. 45). This focus on student learning is no less important to an educational technology initiative, including one that would include video games and simulations. In fact, improved student learning (and achievement) is the purpose behind introducing such technologies into schools.

This focus, in fact, is what DuFour, Eaker, and DuFour (2005) later identified as Big Idea #1 with respect to professional learning communities, "ensuring that students learn" (p. 32; see also DuFour, DuFour, and Eaker, 2006, p. 2). These authors offered two other big ideas that professional learning communities, and in a broader sense any change initiative, should focus on. Big Idea #2 is a focus on "a culture of collaboration" (DuFour, Eaker, & DuFour, 2005, p. 36; DuFour, DuFour, & Eaker, 2006, p. 3), a key to successful organizational change. Stone and Cuper (2006), too, advocated collaboration (p. 19, 46, 83), as do Hord (2004, p.52, 152), Huffman and Hipp (2003, p 62), and Roberts and Pruitt (2003, p. 137, 179). Big Idea #3, then, is to "focus on results" (Eaker, DuFour, & DuFour, 2002, p. 44-45; DuFour, DuFour, Eaker, Karhanek, 2004, p. 134-148, 175; DuFour, Eaker, & DuFour, 2005, p. 20, 31, 39; DuFour, DuFour, & Eaker, 2006, p. 4), or in other words to "focus on outcomes rather than on inputs or intentions" (DuFour, DuFour, & Eaker, 2006, p. 63). Wald and Castleberry (2000) included this focus on results not only as a means for change, but also as the end of their "roller coaster of change" process (p. 42). Roberts and Pruitt (2003) also described professional learning communities that were "results driven and focused on curriculum" (p. 52), and Hord (2004) advocated, "researching for results" (p. 124). It follows that any attempt to integrate educational technologies such as video games and simulations should maintain a similar focus on ensuring that students learn, creating a culture of collaboration, and on achieving results.

Capacity building is another important focus of professional learning communities. DuFour, DuFour, and Eaker (2006) explained their expectations by stating that "members of a PLC are not 'invited' to work with colleagues: they are called upon to be contributing members of a collective effort to improve the school's capacity to help all students learn at high levels" (p. 8). They also believed that "leaders must start… shifting their focus from evaluating and

supervising individuals to developing the capacity of both teams and the entire school to work collaboratively" (DuFour, Eaker, & DuFour, 2005, p. 239). Similarly, one of the outcomes of professional learning communities that Hord (2004) sought was an increase in *organizational capacity*… the capacity of the staff to work well as a unit" (p. 12). Hord observed "of equal importance to establishing shared decision-making structures was the ability of the principals to increase decision-making capacity among their staff" (p. 49) so that the staff had the necessary skills to make a distribution of leadership possible. Huffman and Hipp (2003), too, called for professional learning communities to focus on "increase[ing] individual and organizational capacity" (p. 11; see also p. 31), and Kaagan (2004) discussed "collective capacity building" (p. 3). Stone and Cuper (2006) were even interested in developing students' capacity; they promoted a philosophy of "*each one, teach one...* [which] designate[d] student peer leaders in the classroom" (p. 146). Once again the importance of risk-taking in the culture of a professional learning community is evident, as it is a necessary element of capacity building; Wald and Castleberry (2000) point out that "a climate that encourages risk taking is fundamental when staff members need to stretch beyond what they know and explore frontiers" (p. 24).

While the very act of focusing efforts on what has been identified as important to the organization can improve the likelihood of success for any change initiative, there are also particular elements worthy of focus in many cases. Based on the work of these professional learning community theorists, it seems that any school change effort, including the integration of video games and simulations as educational technologies, might benefit from a focus on ensuring student learning, creating a culture of collaboration, achieving results, and building capacity at all levels of the organization.

4. Develop Leadership

A professional learning community cannot exist without leadership. Hord (2004) "found clear evidence that the administrator is key to the existence of a professional learning community" (p. 20), while Huffman and Hipp (2003) also noted that in a successful professional learning community, "leadership pervades the organization" (p. xvii). It follows that change agents who hope to bring about positive change in schools by developing professional learning communities must also take steps to develop leadership at all levels of their organization, in administrators, in teachers, and even in students.

According to DuFour and Eaker (1998), "to have the greatest impact, principals must define their job as helping to create a professional learning communities in which teachers can continually collaborate and learn how to become more effective" (p. 184). In addition, principals must model "behavior that is congruent with the vision and values of the school" (DuFour & Eaker, 1998, p. 193), remain results-oriented (p. 194), and find a balance in the paradox between urgency and patience within the change process (p. 195). Later, DuFour, Eaker, and DuFour (2005) wrote that principals should model lifelong learning (p. 120) and serve as a "leading learner" (p. 121), or "head learner" as Roberts & Pruitt (2003, p. 26) called it. Huffman and Hipp (2003) also considered principals "co-learners" who modeled the "the level of learning expected from the professional staff" (p. 14). Furthermore, the goal of the principal should be to "build a staff of lifelong learners" (DuFour, Eaker, & DuFour, 2005, p. 121).

Walde and Castleberry (2000) also saw a leader as an "architect of relationships" (p. 27). This is a very different sort of leadership than the traditional top-down authoritative model that has been expected of principals in the past. DuFour and Eaker (1998) expected "principals of professional learning communities [to] lead through shared vision and values rather than through

rules and procedures" (p. 184). Rather than *directing* others what to do, "principals of professional learning communities involve faculty members in the school's decision-making process and empower individuals to act" (p. 185). Huffman and Hipp (2003) thought "the ability of principals to relinquish power is essential for the support of professional learning communities" (p. 14). It is critical for principals to avoid micro-managing a professional learning community. Principals do, however, need to provide *direction* by providing staff "with the information, training, and parameters they need to make good decisions" (DuFour & Eaker, 1998, 186). In fact, Eaker, DuFour, and DuFour (2002) viewed administrators as "leaders of leaders" (p. 22). Huffman and Hipp expressed this by saying that:

> "In PLCs, principals are not coercive or controlling, but seek to share power and distribute leadership among staff. In turn, staff increasingly become open to changing roles and responsibilities. Principals let go of power and nurture the human side and expertise of the entire school community. Shared responsibility is apparent through broad-based decision making that reflects commitment and accountability." (Huffman & Hipp, 2003, p. 38)

If principals are leaders of leaders, then clearly the teachers, too, must serve as leaders in a professional learning community where leadership is shared. Hord (2004) advocated building teacher leadership within a traditional school structure (p. 140). She felt that "principals must be both willing to share leadership and able to develop conditions and communicate expectations that will advance shared leadership among school professionals" (p. 140). Huffman and Hipp (2003) described this kind of leadership saying, "it's not like a leadership that's passed around; it's worn at all times by anyone who wants it" (p. 32). They called this "pervasive leadership" (p. 34). For Hord (2004), the development of shared (or pervasive) leadership enhances, and is enhanced by, team teaching (p. 9). As Stone and Cuper (2006) wrote, teachers come to "rely on each other's areas of strength… [and] to support, help, and laugh with each other" (p. 101). For

this reason, Stone and Cuper also advocated "collaboration pods" (p. 19), not unlike the teams

suggested in the DuFours' model. Stone and Cuper also understood that:

> "The finest educational leadership... it is the leadership of teachers - big-spirited, compassionate, and inventive teachers who lead through their willingness to reach out to their colleagues and their communities. It is the leadership of teachers who are always on the lookout for ways to enhance their practice through the use of new technologies, through professional development, and through discovering and sharing the talents of the people living in their communities" (Stone and Cuper, 2006, p. xi)

Eaker, DuFour, and DuFour (2002), too, viewed teachers as "transformational leaders"

(p. 22). Similarly, Huffman and Hipp (2003) noted, "setting expectations often begins with the

principal, but in the high-readiness schools at the implementation phase, the teachers quickly

assumed the responsibility for continuing to develop and to sustain those expectations" (p. 42).

Many of these theorists even advocated that leadership reach down to the student level.

DuFour, Eaker, & DuFour (2005) acknowledged that ""the principal who *joins with* the faculty

and students in learning activities is the one who changes the school culture into one that is

hospitable to lifelong learning" (p. 121); student are included in the creation of this culture.

Earlier, Roberts and Pruitt explained, "leaders are not limited to the administrative ranks.

Leaders may be staff members, parents, community members, or even students" (p. 176).

Huffman and Hipp (2003) had documented schools in which ""teachers teach the students to lead

one another, so there's a bunch of leaders in [the] school" (p. 32), and later Stone and Cuper

(2006) advocated that educators "designate student peer leaders in the classroom" (p. 146).

Developing meaningful and effective leadership abilities at each level of the organization

- administrators, teachers, and students - requires a good deal of capacity building. After all, as

Hord (2004) points out, "at the beginning, most teachers did not have experience with site based

decision making, and principals often had to provide training on new roles and responsibilities"

(p. 47). She noted "of equal importance to establishing shared decision-making structures was the ability of the principals to increase decision-making capacity among their staff" (p. 49). She went on to explain several principal capacities that help build leadership in others, including listening (p. 146), knowledge of teaching and learning (p. 146), and consistency of follow through (p. 147). Hord also recommends recruiting external change agents to help with this process (p. 149).

If a change agent, internal or external, is helping an organization develop a professional learning community so that other change initiatives, such as the integration of video games and simulations into teaching and learning, might be more effective, then in addition to respecting the realities of change, establishing mission, vision, values, and goals, and focusing on what's important, they must also be sure to develop leadership at all levels of the organization. Clearly efforts at building the leadership capacity of administrators are important, but these efforts should also be extended to include teachers (and even students) so that a culture of shared leadership can be developed at the school. There is no need to delay a change initiative in order to develop this leadership capacity, but this need for leadership development should be addressed as a part of any school change effort.

5. Develop Teaching (Including Professional Development)

Dennis Sparks said, "teaching is the most effective means through which a leader can lead" (Tichy, 2002, p. 57, as cited in DuFour, Eaker, & DuFour, 2005, p. 165). As Hord (2004) pointed out, the most effective principal will be one who has a deep understanding of teaching and learning (p. 146), and one of the main benefits of developing a shared vision is the opportunity to then use that shared vision to recruit quality staff (p. 46). Developing a

professional learning community necessitates not only a need to develop leadership, but also a need to develop high-quality teaching at the school. Ultimately the ability of an organization to teach and learn will be the determining factor in the success or failure of any change initiative, including any effort to introduce video games and simulations as educational technologies. For this reason, schools must overcome the cultural belief that they cannot honor or identify good teaching because it will "lead to unhealthy competition and bad feelings among teachers" (DuFour, DuFour, Eaker, Karhanek, 2004, p. xiv).

The DuFours and their co-authors put the development of quality teaching and learning at the heart of their professional learning community model. "First and foremost," they said, "the potential benefits of collaboration will never be realized unless educators work together in matters directly related to teaching and learning" (DuFour and Eaker, 1998, p. 125). They described a professional teacher as one who emphasizes learning rather than teaching (p. 216), emphasizes active student engagement with significant content (p. 217), focuses on student performance and production (p. 218), routinely collaborates with their colleagues (p. 219), and consumes research as a student of teaching (p. 220, see also DuFour, DuFour, and Eaker, 2006, p. 83). For DuFour and Eaker, professional teachers also serve as leaders (p. 226). The DuFour's constructivist approach to inquiry also plays a roll in their concept of a professional teacher; they consider "the focus of collective inquiry… both a search for best practice for helping students learn at high levels and an honest assessment of the current reality regarding teaching practices and student learning" (DuFour, DuFour, & Eaker, 2006, p. 21). They also call for an interactive sort of teaching, including patterns of calling on students, responses to student answers (such as cuing, wait time, expressing confidence, asking the question in a different way, and validating what is right about a student's answer while pointing in another direction; DuFour, Eaker, &

DuFour, 2005, p. 92), giving help (such as useful cues; DuFour, Eaker, & DuFour, 2005, p. 92),

dealing with errors, assigning tasks, offering feedback on student performance, and displaying

tenacity as a teacher (DuFour, Eaker, & DuFour, 2005, p. 90-91). In order to make this sort of

teaching possible, they also suggest that school schedules be carefully designed to include

"consistent and large blocks of teaching and learning time" (Eaker, DuFour, & DuFour, 2002, p.

63), and to include collaborative structures with a focus on teaching and learning (DuFour and

Eaker, 1998, p. 196-199).

Hord (2004) also called for the professionalization of teaching; her model included

critical self-consciousness (p. 155), practical expertise (p. 157), trustful relationships with

students (p. 158), and collegial regulation among fellow teachers (p. 159). Hord shared that in

"he most successful schools functioned as professional learning communities, where teachers

helped one another, took collective (not just individual) responsibility for student learning, and

worked continuously to improve their teaching practices" (p. 12). She also noted the importance

of "providing the structures necessary for learning (e.g., team meetings, grade-level meetings,

study groups, etc.) and look[ing] for other opportunities for… teachers to collaborate around

meaningful teaching and learning issues" (Hord, 1997, as cited in Roberts & Pruitt, 2003, p. 47).

Hord wasn't alone in believing that "meaningful and continuous conversation among teachers

about their beliefs, their teaching, their learning, and what they have learned about teaching is

necessary for teachers to develop into a community of learners and leaders" (Kruse, Louis, Bryk,

1995, as cited in Roberts & Pruit, 2003, p. xi). Wald and Castleberry (2000) advocated a similar

practice, writing that as teachers reflect on themselves "as learners in a larger community…

[they] will have new insights about cooperative learning in heterogeneous groups, learner-

centered teaching, and the inquiry-based approach to learning" (p. 17). Stone and Cuper (2006)

conclude that teacher education programs must be dedicated to fostering the concept of being a lifelong learner in professional educators so that they might pass this on to their students (p. 88-89).

Professional development is an important part of building educators' capacities as teachers. DuFour and Eaker (1998) recommend that the *content* of staff development programs should "be based on research", focused on "both generic and discipline-specific teaching skills", and used to "expand the repertoire of teachers to meet the needs of students who learn in diverse ways" (p. 276). They also recommend that the *process* of staff development should "attend to the tenets of good teaching," "provide the ongoing coaching that is critical to the mastery of new skills," "result in reflection and dialogue on the part of participants," "be sustained over a considerable period of time," and "be evaluated at several different levels, including evidence of improved student performance" (p. 276). Finally, they recommend that the *context* of staff development should "be focused on individual schools and have strong support from the central office", "be so deeply embedded in daily work that it is difficult to determine where the work ends and the staff development begins", and "foster renewal" (p. 277). Stone and Cuper (2006) further recommend, "enriching and extending teaching through professional conferences" (p. 102). Roberts and Pruitt (2003) recommend steps for designing staff development, including relating it to the school vision, deciding on areas of focus, identifying competencies needed by the staff, and developing a plan for professional development (p. 67-68).

At the heart of any school change effort should be an attempt to improve teaching. Change agents who hope to help educators adopt video games and simulations as educational technologies need to be sure their efforts focus on such improvements as are recommended by

the professional learning community theorists above. Games and simulations may even serve as natural means of helping teachers practice and hone their teaching and learning skills.

Overcoming Organizational Resistance

A thorough review was conducted of theories about professional learning communities published by DuFour & DuFour, Wald & Castlebury, Huffman & Hipp, Roberts & Pruit, Hord, and Stone & Cuper. This review has revealed ten elements of school change that can be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment. The next three of these elements relate to overcoming organizational resistance: respond to obstacles, challenges, and barriers; sustain the change process; and, develop learning.

6. Respond to Obstacles, Challenges, and Barriers

As Hord (2004) reported, "changing schools is highly challenging, complex, and messy work - and change is rarely welcomed" (p. 3). There are a variety of obstacles, challenges, and barriers to successful school change, including resistance from faculty and others. However, many professional learning community theorists have addressed these elements of resistance. They have offered strategies for responding to obstacles, challenges, and barriers – and for overcoming organizational resistance.

One of the first and most obvious obstacles is people in the organization who actively resist change. DuFour and Eaker (1998) point out that "principals often make one of three mistakes as they struggle with this problem" (p. 188). They either "pay too much attention to the resisters… vilify the resisters… [or] focus on attitudes rather than behaviors" (p. 188-189). DuFour and Eaker share that "the most effective way to change negative attitudes is to focus on

behavior… [thus] providing them with new experiences [that] can become a catalyst for transforming attitudes" (p. 190, see also DuFour, & DuFour, 2002, p. 85). There are a variety of other objections or problems that schools must overcome: the claim that "there is not enough money or personnel" to support the necessary changes, or that "there is not enough time for frequent teacher collaboration" (DuFour, DuFour, Eaker, Karhanek, 2004, p. xiv). These issues must be creatively and carefully accounted for in school schedules and budgets. Even so, there will be no denying that "building a professional learning community is difficult due to the many demands on teachers and administrators; the growing accountability issues; the increasingly diverse needs of students; teacher isolation and burnout; and many other unmanageable stressors" (Huffman & Hipp, 2003, p. 5). Increasing a school's capacity for flexibility and adaptability is critical for successful change efforts, but ultimately, "the level of distrust, the lack of structural flexibility, debilitating levels of turnover among school and district personnel, lack of resources, and other obstacles combined to make PLC implementation a truly heroic effort" (Hord, 2004, p. 151).

In addition to these obstacles, DuFour, Eaker, and DuFour (2005) identified "three daunting challenges" (p. 9) to professional learning communities. The first is the challenge of "developing and applying shared knowledge" (p. 9), which is highly individualistic and dependent on context. The second is the challenge of "sustaining the hard work of change" (p. 10), which requires considerable effort and focus, particularly in the early days of a professional learning community. As DuFour, Eaker, and DuFour pointed out, there are "no easy shortcuts... it will require a staff to find common ground and to exert a focused, coherent, consistent effort over time" (p. 11). The third and most daunting challenge is that of "transforming school culture (p. 11), which the authors explain this way:

"Significant school transformation will require more than changes in structure - the policies, programs, and procedures of a school. Substantive and lasting change will ultimately require a transformation of culture - the beliefs, assumptions, expectations, and habits that constitute the norm for the people throughout the organization" (DuFour, Eaker, & DuFour, 2005, p. 11)

The DuFours and others offer still more warnings about additional barriers. For instance, the sorts of logistical barriers that Richard DuFour overcame at Adlai Stevenson high school included the teacher's association (DuFour, DuFour, Eaker, Karhanek, 2004, p. 68), instituting a new concept of supervision (p. 69), providing staffing (p. 71), revisiting the grading system (p. 72), continuing to handle discipline issues (p. 73), and working together to find solutions (p. 77). Many of these same issues will need to be addressed or revisited when a technology such as video games or simulations are introduced to a school culture. More "fundamental barriers to professional learning communities" were identified by DuFour, Eaker, and DuFour (2005, p. 162). First among these was "a lack of clarity regarding vales, intentions, and beliefs" (p. 162). Clearly maintaining a focus on mission, vision, values, and goals will be important to overcoming this barrier. The next was a "dependence on those outside of the school for solutions to problems" (p. 162), which can only be overcome by building the problem solving capacity of the faculty, staff, and community of the school. The worst barrier was a "sense of resignation that robs educators of the energy that is essential to the continuous improvement of teaching, learning, and relationships in schools," (p. 162), which can only be overcome through inspirational leadership, frequent celebrations, and consistent attention to the human side of school change. Elsewhere in the same volume, DuFour, Eaker, and DuFour offer an additional "ten barriers to action and how to overcome them" (p. 227-248). Hord (2004) pointed out additional structural barriers, such as "lack of training, lack of time, lack of a culture of collaboration, and lack of leadership support for shared practice" (p. 152), and the fact that "for

the most part, American teachers work in high-volume, short term relationships with students"
(p. 153).

To overcome these barriers the principal (or other change agent) must "constantly nurture
those who under[stand] the value of becoming a PLC and persuade those who [have] yet to
recognize the strength of a PLC" (Hord, 2004, p. 23). This is important because, according to
Hord's observations, "professional learning communities provide the means through which
teachers can be enabled and emboldened to develop individually as professionals, and
collectively as a profession" (p. 153). Moreover, "those who begin the PLC journey and the
cultural shifts that it requires should not only anticipate but should also welcome challenges to
PLC concepts" (DuFour, DuFour, Eaker, Karhanek, 2004, p. 168). After all, as Hord (2004)
explained, "the most successful PLC schools… were catalyzed by an external crisis or
opportunity and lead by a powerful administrator who transformed the external force into energy
for internal change" (p. 4).

Clearly change agents responsible for the introduction of new educational technologies,
such as video games and simulations, will need to respond to similar obstacles, challenges, and
barriers. Luckily, similar solutions to those used in professional learning communities should be
helpful. For instance, focusing on behaviors rather than attitudes may be a more efficient way to
help educators accept the use of new technologies.

7. Sustain the Change Process

Establishing a professional learning community and then responding to obstacles,
challenges, and barriers can go a long way toward improving the chances that school change
initiatives will be successful. However, these efforts are easily wasted if the process is not

sustained over time. Not surprisingly, professional learning community theorists also offer advice for sustaining the process. They explore the human needs for passion and persistence in addition to more structural changes.

Eaker, DuFour, and DuFour believed that "what the PLC model offers is a process, not a program" (p. 107), a process that DuFour and Eaker (1998) described as nonlinear and persistent (p. 282-283). A critical first step in this process is to build shared knowledge of the school's current reality (DuFour, DuFour, Eaker, Karhanek, 2004, p. 95). It is also "imperative that the school develop a critical mass of personnel that accepts both the desirability and feasibility of transforming the school" (DuFour and Eaker, 1998, p. 286). To accomplish this and other steps, Eaker, DuFour, and DuFour (2002) recommended creation of a guiding coalition of school leadership (p. 61). The next step is the process of laying the foundation of shared mission, vision, values, and goals (p. 62-63). Then school structures, such as the schedule and organizational hierarchies, must be aligned with the professional learning community model, including time for teachers to plan or collaborate (p. 63-64). Over time, the ability to enhance team productivity by analyzing data, identifying strengths and weaknesses, reaching consensus on the reality of the past, and identifying a goal (p. 65). Perhaps most importantly, professional learning communities should "limit the number of collective commitments to a handful; five or six is plenty" (p. 103). These "collective commitments also serve as a guide for confrontation" (p. 104) when some staff are not fulfilling their commitments to the community. Huffman and Hipp (2003) articulated "five dimensions characteristic of schools with successful professional learning communities in place" (p. 6), including shared professional practice (p. 11) and "an environment that values such endeavors is enhanced by processes that encourage teachers to share their personal practices with one another... peer review and feedback on instructional practice in order to increase individual

and organizational capacity" (p. 11). Finally, Eaker, DuFour, and DuFour (2002) warn, "the

process need not and should not use a cookie cutter approach" (p. 81). Or, as DuFour and Eaker

wrote in 1998:

> "When the challenge of creating a professional learning community is reduced to a recipe or formula, it is easy to overlook the fact that this task is a passionate endeavor. A school becomes a professional learning community... by tapping into the wellsprings of emotions that lie within the professionals of that school." (DuFour and Eaker, 1998, p. 280)

Other human "needs and yearnings that the professional learning committee seeks to

address" (DuFour and Eaker, 1998, p. 280) include the "desire to succeed in one's work" (p.

280), the "desire to belong, to feel a part of a collective endeavor" (p. 281), and the "desire to

live a life of meaning, to serve a higher purpose, to make a difference in this world" (p. 282).

Eaker, DuFour, and DuFour (2002) also addressed the importance of meeting often unmet needs

for educators, such as the "need to feel a sense of personal accomplishment" (p. 52), the "need to

belong" (p. 53), and the "need to feel our life has meaning" (p. 53). Ultimately, the professional

learning community should set out to create "a community of caring and mutual concern"

(DuFour and Eaker, 1998, p. 281). Wald and Castleberry (2000) also add that "to sustain…

communal energy and hope, the leader must hold the vision high for all to see, constantly revisit

it, expand on it, and continuously help members of the community connect with it and find ways

to personalize it and make it their own" (p. 20). However, like Evans in the breadth portion of

this KAM, DuFour and Eaker (1998) caution "optimism must be tempered by tough-minded

recognition of the difficulties that lie ahead" (p. 286). DuFour and Eaker (1998) wrote that

passion and persistence are key to sustaining a professional learning community (p. 279), and in

2002 Eaker, DuFour, and DuFour were insistent that sustainability was a matter of "persistence,

persistence, persistence" (p. 27). As they explained, "the difficult times are inevitable and can be

overcome only through the tenacity and persistence that are byproducts of passion" (p. 105).

Hord (2004), too, acknowledged that successful professional learning communities "had a

realistic understanding of change as a process that requires an ongoing commitment that

oftentimes simply reduces to perseverance" (p. 23).

There are ways, of course, to persevere wisely. DuFour and Eaker (1998) advocated

observance of "the three Cs of sustaining an improvement initiative - communication,

collaboration, and culture" (p. 106). They focused on "the need for clear, constant

communication in support of [objectives]" (p. 106), the "shift from a culture of teacher isolation

to a culture of deep and meaningful collaboration" (p. 10), and "embedding change in the culture

of a school" (p. 131). Hord (2004) shared "strategies for increasing staff capacities for

continuous learning" (p. 23), including "focusing on staff and student success" (p. 24), "making

opportunities for teachers to learn" (p. 25), "inviting teachers into decision-making and

implementation" (p. 25), "nurturing new ways of operating" (p. 26), and "connecting

professional development to school improvement goals" (p. 51). Kagaan (2004) believed that

"staff professional development should in significant part be about finding allies, colleagues,

even soul mates for ideas that are worth pursuing" (p. 3) and that "good professional

development should counter this sense of isolation... [teachers] should return to their daily

responsibilities uplifted, renewed, and ready to assume new challenges" (p. 3). He supported

"collective capacity building" (p. 3) and recommended three guiding principles of professional

development:

- "Participants take responsibility for their own learning
- Development exercises reflect high-impact learning
- Development exercises engender collective energy" (Kaagan, 2004, p. 5)

"Most important," Kagaan (2004) wrote, "the exercises have to stimulate and inspire, providing a sense of anticipation that will be rewarded and a challenge that will be fulfilled" (p. 6).

Wald and Castleberry (2000), for their part, focused on establishing "environments characterized by high levels of trust" (p. 62). These environments included elements such as openness, sharing, acceptance, support, and cooperative intention (p. 62). Hord (2004) also frequently addressed the theme of building trust in a professional learning community (p. 31, 33, 36, & 43). Wald and Castleberry (2000) also recommended five communication norms that facilitate collaborative learning: listening carefully, sharing relevant information, developing shared meaning, making assumptions explicit, and deciding by consensus (p. 64). In addition, they shared several "group practices that support collaborative learning" (p. 69): establishing ground rules (p. 69), exploring trust and task roles (p. 70), documenting information (p. 71), and reflecting on group processes (p. 71). Similarly, Huffman and Hipp (2003) identified "five dimensions characteristic of schools with successful professional learning communities in place" (p. 6): supportive conditions (p. 13, including "the people capacities of those involved and the physical, or structural, conditions" p. 12), restructured time in the school day (p. 13), and the abilities of principals to both relinquish power and model learning (p. 14). Roberts and Pruitt (2003) recommend that principals follow ten specific steps to sustain their professional learning communities, including taking "every opportunity to educate [the] staff and the broader school community about the characteristics of learning communities" (p. 47), demonstrating the value of learning "by actively participating in learning activities with the teachers" (p. 48), and consistently focusing on instructional outcomes (p. 48). They also shared many strategies for overcoming barriers to effective teamwork, including providing "time enough for the group

process" (p. 72), paying attention to "issues of equity and diversity" (p. 74), and providing "training in team skills" (p. 77). They even address ways that conflict between team members can be managed (p. 83). Most importantly, "to ensure shared leadership is sustained" (p. 186), they recommend the continual development of new leaders at the school. This process can include strategies such as a mentoring program (p. 144-147). Another strategy recommended by Hord (2004) was to commit funding "for teachers to attend conferences and visit other schools to observe effective practices" (p. 39), after which those teachers would then be "responsible for imparting their new knowledge to the entire staff afterward" (p. 39).

Eaker, DuFour, and DuFour describe a cultural shift from a culture where "improvement efforts frequently shift as new fads or trends come along" (p. 28) to a culture in which commitment "to 'stay the course' in the attainment of the school vision [ensures that] new initiatives are only implemented if it is determined that the change will help the school achieve its vision of the future" (p. 28) and in which "the leader's role is to promote, protect and defend the school's vision and values and to confront behavior that is incongruent with the school's vision and values" (p. 28). Hord (2004) describes this process as long-term transformation taking three years (115-120). In year one, a new professional learning community is "fighting the status quo" (p. 115). In year two, the school encounters what she calls "speed bumps on the path of transition" (p. 117), and year three finally brings "transition to transformation" (p. 120). She also points out that "three years is not long enough to develop professional learning communities, though" (p. 162) a sustainable seed can be planted in that amount of time.

Regarding the assessment of a school as a professional learning community, Huffman and Hipp (2003) warn that "while many principals and faculties conceptualize their schools as organizations operating as learning communities, they rarely meet the operational criteria" (p.

67) and they developed the *School Professional Staff as Learning Community* questionnaire as an instrument for objectively evaluating schools as professional learning communities (p. 68). Such an instrument is in keeping with Roberts and Pruitt's (2003) philosophy of teachers learning through classroom observation (p. 118).

Many of the lessons learned by those who have sustained professional learning communities year after year can be valuable to change agents responsible for other long-term change initiatives, such as the integration of video games and simulations as educational technologies in schools. Such change agents, whether administrators or educational technologists, can benefit from considering the change initiative a process, in which human needs must be met over time with passion and persistence. They can also benefit from proceeding as wisely as possible by implementing the advice of the authors discussed above.

8. Develop Learning

Hord (2004) wrote that "substantive change is never simple, and any change requires learning" (p. 57). Ultimately, the sustained success of a professional learning community, or any individual change initiative, is dependent on the ability of the organization (or school) to learn. Change agents should focus first and foremost on developing the learning capacity of their organizations, and the individuals in those organizations.

The DuFours focused on schools as *learning organizations* (DuFour & Eaker, 1998, p. 15). Even though developing teaching skills is important, these authors describe a cultural shift from a school that is primarily focused on teaching to one that is primarily focused on learning (Eaker, DuFour, & DuFour, 2002, p. 18; DuFour, DuFour, Eaker, Karhanek, 2004, p. 173; DuFour, DuFour, & Eaker, 2006, p. 83), and from a culture of average learning to a culture of

individual learning (DuFour, DuFour, Eaker, Karhanek, 2004, p. 177). They advocate "learning for all versus teaching for all" (DuFour, Eaker, & DuFour, 2005, p. 12). They call for the principal to model lifelong learning (DuFour, Eaker, & DuFour, 2005, p. 120) and to focus on developing a staff of lifelong learners (p. 121). Among their tips for celebrations, a key to sustaining professional learning communities, the DuFours even recommend sharing professional learning at weekly team meetings and monthly staff meetings (DuFour, DuFour, & Eaker, 2006, p. 91).

Other professional learning community theorists also emphasized the importance of learning for sustained change in schools. Wald and Castleberry (2000) focused on certain assumptions about adult learning; according to their model adult learning is an active process that occurs over time (p. 10), is driven by the learner around meaningful issues (p. 11), is experimental by nature (p. 11), and is fueled by rich, diverse, accessible sources of information (p. 12). They also felt that "inquiry into underlying assumptions deepens the learning process" (p. 9). For Wald and Castleberry a professional learning community would be one in which "the learner not only hears and processes the information but also experiments with it and then documents and reflects on the results" (p. 10). It is also important that "opportunities exist for the expert to learn from the learner and for the learners to learn from each other and from their own fund of knowledge and experience" (p. 12). In addition, Wald and Castleberry write that:

> "Yet other rich and diverse sources of information can be found inside and outside the school walls... sharing know-how and ideas among staff... discussing success and failures, and... supporting each other in experimenting and reflecting... network with other teachers; access consultants and university faculty; and tap into multiple forms of technology, such as video, computer, and telecommunications." (Wald & Castleberry, 2000, p. 12)

Roberts and Pruitt (2003) advocate a variety of means for members of a professional learning community to learn. One is to learn through a study group, or "a gathering of people who meet on a regularly scheduled basis to address issues that the group members have agreed to study" (p. 92). After all, "conversations among administrators, supervisors, and teachers are a critical aspect of building the professional learning community needed for successful school reculturing" (p. 91). They also suggest learning through a professional portfolio, or "a thoughtful document demonstrating a teacher's approach to teaching or an administrator's approach to leadership... and reflection about it" (p. 159).

Huffman and Hipp (2003) point out that a professional learning community "focuses, first and foremost, upon learning on the part of professionals in the school as the way to increase learning on the part of students" (p. 76). This process of learning and application includes an early phase of "establishing a school culture that values sharing information" (p. 45). Meanwhile, "gaining knowledge, skills, and strategies often is accomplished by traditional staff development, including workshops, mini-workshops, conferences, district inservices, and university courses" (p. 47). It is critically important to throughout this process that the principal, as a co-learner, "models the level of learning expected from the professional staff" (p. 14).

Kagaan, too, wrote for:

> "Professionals who believe that the 'whole' of collective efforts is infinitely greater than the 'sum' of individual efforts. Professionals who are convinced that their own learning is prerequisite to the learning of students - and that the learning of students is enhanced by their own learning" (Kagaan, 2004, p. 1)

Kagaan (2004) also recommended several principals of staff development, including the expectations that "participants take responsibility for their own learning", "exercises reflect higher-order thinking", and "exercises engender collective energy" (p. 5).

Like Huffman and Hipp, Hord (2004), focused on "collective learning and application of that learning" (p. 1) and like Wald and Castleberry, she also focused on "making opportunity for teachers to learn" (p. 25). In addition to the sorts of experiences advocated by Huffman and Hipp, Hord emphasized the importance of teachers "learn[ing] from and teach[ing] each other by focusing their attention collectively on issues that they identified themselves" (p. 37).

Being primarily constructivist in their pedagogy, many of these theorists focused on the context of professional learning. Huffman and Hipp (2003) for instance believed that professional development should be "an activity that is embedded in the various educational processes of operating schools - curriculum development, student assessment, and the development and evaluation of instructional strategies" (p. 10). Roberts and Pruitt (2003) also advocated "job-embedded professional development strategies… [because] they are collaborative and offer opportunity for conversation, reflection, and inquiry" (p. 55). They also recommend that adult learners need to have "a practical use for the knowledge and think it will benefit them in real life" (p. 60), and they recommend that learning be an active and interactive process (p. 61). Similarly, DuFour, DuFour, and Eaker (2006) warn that "to transform data into information requires putting data in context" (p. 61) and recommend this as part of professional development efforts.

A great deal of adult learning is involved when new educational technologies are integrated into a school's teachng and learning routines. For this reason, change agents responsible for the integration of new educational technologies, such as video games and simulations, must address the needs of the adult learners who will be implementing the new technologies. Professional development should be collaborative, context-embedded, and congruent with the principals of a professional learning community.

Integrating Organizational Change with Society

A thorough review was conducted of theories about professional learning communities published by DuFour & DuFour, Wald & Castlebury, Huffman & Hipp, Roberts & Pruit, Hord, and Stone & Cuper. This review has revealed ten elements of school change that can be used to guide the process of integrating video games and simulations as educational technologies in a constructivist learning environment. The final two of these elements relate to integrating organizational change with society: include the family and community, and effect positive social change.

9. Include the Family and Community

As with any school change, professional learning communities are not formed in isolation. Families of the students and faculty, and the surrounding community, influence and are influenced by changes in the school. Professional learning community theorists recommend taking advantage of this symbiotic relationship rather than ignoring it.

DuFour and Eaker (1998) look at parents as partners (p. 238), and they offer a framework for school-parent partnerships that consists of six standards. The first is that "communication between the home and school is regular, two-way, and meaningful" (p. 241). The second standard is to promote and support the development of parenting skills in the community (p. 244). Third, they recommend that schools encourage parents to "play an integral role in assisting student learning" (p. 245). Fourth is the requirement that parents be welcome in the school, and that their support and assistance are sought (p. 246). The fifth standard is that parents be made "full partners in the decisions that affect their children" (p. 248). Finally, they recommend collaboration with the community such that "community resources are used to strengthen

schools, families and student learning" (p. 249). DuFour and Eaker also include "representatives of parents" (p. 67) in the process of developing shared mission, vision, values, and goals. Later, Eaker, DuFour, and DuFour (2002) include involving parents among their strategies for responding to students who are not learning (p. 71). DuFour, DuFour, Eaker, and Karhanek (2004) then recommended parent workshops organized by grade level (p. 108).

Roberts and Pruitt (2003) also explore ways to "collaborate with parents in learning communities" (p. 153). Like the DuFours, they offer tips for home-school communication, parenting, parent involvement in student learning, parent volunteering, parent-inclusive decision making, and collaboration with the community (p. 153-155). In short, Roberts and Pruitt believed that "students, parents, and teachers benefit when parents assume the role of learners" (p. 15) and that parents, too, can be school leaders (p. 176). Similarly, Huffman and Hipp (2003) viewed "a united effort from school staff, parents, and community members [as being] critical to embed effective practices and values into the culture of the school" (p. 64). Hord (2004) also included parents and other citizens as part of external support in her model of professional learning communities (p. 12). Similarly, Stone and Cuper (2006) counted community among their three C's of education: a classroom, a community, and collaboration (p. 46). This framework, too, is accompanied by numerous tips that might help aspiring change agents to leverage parents and the community for successful school change.

In order to draw on all available resources and to maximize the chances of success and sustainability for their change initiatives, change agents should involve parents and community members in all phases of the change process from planning to implementation and on into assessment and re-evaluation. This is true even of efforts to incorporate new educational technologies such as video games and simulations. Parents and community members may poses

valuable expertise and at the very least will be able to understand a broader perspective on the influence of new technologies on the lives of students. Many obstacles, challenges, and barriers may be avoided or more easily dealt with on account of parent and community input into a change process. In addition, they are stakeholders, too, and deserve a voice in the process.

10. Effect Positive Social Change

In the end, parents and the community do not exist so much to improve schools, as schools exist to improve the community, or society at large. Professional learning community theorists tend to subscribe to the view that the purpose of any school change is to effect positive social change.

The DuFours in particular support this view, from their philosophy of service leadership (Eaker, DuFour, & DuFour, 2002, p. 54) to their efforts to "building engines of hope" (DuFour, Eaker, & DuFour, 2005, p. 110). In short, they believe that the "most powerful fuel for sustaining the initiative to improve a school is not the desire to raise test scores but rather the moral imperative ...the professional learning community concept offers the best strategy for connecting educators to that moral imperative" (DuFour, DuFour, Eaker, Karhanek, 2004, p. 11-12). Put another way, school change is made "not for the sake of improved test scores, but for the sake of the dreams and aspirations of the children whose lives they touch" (p. 192).

Others in the field espouse similar philosophies. Wald and Castleberry (2000) suggested that educators "see each other as human beings brimming with possibility and potential" rather than "as part of an assembly line" (p. 14). Roberts and Pruitt (2003) were interested in "in identifying, celebrating, and modeling on an ongoing bases those behaviors and

accomplishments that reinforce the positive aspects of the culture" (p. 177). Hord (2004) was

also interested in being sure that "students of all social backgrounds benefit equally, regardless

of race, gender, or family income" (p. 12). Acknowledging the interconnectedness of education

and societal change, Stone and Cuper (2006) concluded that ""we must be forever vigilant in our

search for creative and unique solutions to help us meet the educational needs of our students and

prepare them for the society and world these changes will bring" (p. 89). Stone and Cuper also

captured the spirit of education for social change when they wrote that:

> "Recognizing the global nature of educating our children has provided the
> children the opportunity to take their education into their own hands and act as
> leaders in the community. It has given parents input they had been denied,
> creating a more positive relationship with the school. It provides the greater
> community a chance to give back and act as stewards for the environment and the
> children who live there. No one is left in doubt as to his or her contribution to
> each child's education or his or her role in creating a positive change in the
> world." (Stone and Cuper, 2006, p. 53)

The use of new educational technologies, such as video games and simulations, is not an

end unto itself. The change agents responsible for the implementation of such technologies must

always keep in mind the question of whether or not the greater social good is being served by the

changes they propose.

Conclusion

Based on the works of DuFour & DuFour, Wald & Castlebury, Huffman & Hipp, Roberts

& Pruit, Hord, and Stone & Cuper, a working theory of school change has been presented in

three sections: *Facilitating Organizational Change*, *Overcoming Resistance to Organizational*

Change, and *Integrating Organizational Change with Society*. Five principles of school change

related to *Facilitating Organizational Change*: respect the realities of change; establish mission,

vision, values, and goals; focus on what's important; develop leadership; and develop teaching.

Three more principles related to *Overcoming Resistance to Organizational Change*: respond to obstacles, challenges, and barriers; sustain the process; and, develop learning. Finally, the last two principals related to *Integrating School Organizational Change with Society*: include family and community, and effect positive school change. Organizational change in schools has proven challenging. The barriers to change may even seem insurmountable at times. However, a decade of research and practice suggests these ten principles, or strategies, for school change can help school leaders manage a successful change process.

When facilitating school change to integrate new educational technologies, the challenges are no less daunting; more likely, the additional obstacles are like adding shrapnel to a hand grenade. Just as these ten strategies can help with other forms of school change, so too can they help with the integration of new technologies, particularly when it comes to dealing effectively with resistant faculty. Educational technologists and change agents can even use these principles to guide the process of integrating video games and simulations into a constructivist learning environment. The extra time and effort necessary to form a professional learning community to support the change initiative may well pay off with an increased chance of long-term success.

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Annotated Bibliography

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Many of the authors discussed in the depth essay above recommended that

educators supplement their professional development by attending professional

conferences (Hord, 2004, p. 39, Huffman & Hipp, 2003, p. 47). In this article,

Austen also recommended this strategy as "an excellent way to accomplish the

goal of staying connected to other adults while continuing to grow as educators"

(p. 102). She offered ten tips for helping educators maximize their learning

during conferences. These tips included identifying goals, seeking support,

sharing with the community upon returning, and reflecting upon the conference

experience. Though this article does not represent a formal study, it does directly

address a strategy for capacity building that is largely ignored in the depth essay

discussion above.

Beaty, D., & Pankake, A. M.(2003). Nurturing the human side: a crucial component for PLCs. In Huffman, J. B., & Hipp, K. K. *Reculturing schools as professional learning communities* (pp. 97-108). Lanham, MD: ScarecrowEducation.

In this article, Beaty and Pankake presented a case study of a small rural high

school with poor facilities in an area poor enough to qualify for Title 1 funding

district wide. Ten years prior the school had been ranked low performing and had

a high teacher turnover rate. However, due to the professional learning

community at the school and especially due to the practice of celebrating faculty

and student success, the school had then ranked highly on state accountability

tests for seven years – and ranked the highest possible the previous two years.

Beaty and Pankake offered readers key areas for reflection, a challenge, and key

questions to further their own learning from the case study. Articles such as this

will be particularly valuable to readers of the DuFour's more general descriptions

of professional learning communities.

Bradshaw, M. C. (2006). Perception, focus, and attitude: teachers leading the way. In Stone, R., & Cuper, P. *Best practices for teacher leadership* (p. 137-140). Thousand Oaks, CA: Corwin Press.

Bradshaw argued that though schools can certainly improve, they are not failing.

He noted how the perception that schools are failing is becoming a self-fulfilling

prophecy, and he asks what might be done to change this public perception. His

answer was that "educators are going to have to be more vocal about [their] own

successes, not just about inadequate pay and how overworked [they] are" (p. 139).

Bradshaw then presented a slew of staggeringly positive statistics demonstrating

improvement in American public schools from the 1970s to the new millennium.

This is an important lesson that can be applied to supporting professional learning

communities. While the practices of focusing on failures can instigate a negative

reinforcement loop, sharing success can on the other hand support a positive

reinforcement loop.

Easin-Watkins, B. (2005). Implementing PLCs in the Chicago public schools. In DuFour, R., Eaker, R. & DuFour, R. (Eds.), *On common ground: the power of professional learning communities* (pp. 193-207). Bloomington, IN: Solution Tree.

Easin-Watkins described "the challenges of developing the capacity of staff to

build professional learning communities across an urban district that includes over

620 schools, 45,000 employees, and 434,000 students" (p. 192). She outlined

three steps in this process: creating a shared mission and vision, making structural

changes necessary to support the vision, and committing to allowing time for real

change to occur (p. 194-195). She shared many experiences that will be valuable

to others developing professional learning communities, including "steps toward a

shared vision" (p. 195), a process for "laying a strong foundaction for PLCs" (p.

197), and model for STARS (School Teams Achieving Results for Students, p.

202-206). Though the article is light on academic references (with only two), it

draws heavily on the authors' considerable experience as chief education officer

of the Chicago Public Schools.

Evans, R. (1998). Changing families changing schools. *Independent School Magazine.* Winter
   1998. Washington, DC: National Association of Independent Schools.
   http://www.robevans.org/NewFiles/families.html

Evans addressed "the irony at the heart of the growing division between home and

school… that all the participants are caught in a similar crucible, the classic stress

postion in which demands are too high, supports are too low, and, despote the best

intentions and efforts, a chronic sense of inadequacy prevails" (p. 2). He went on

to explore recent changes in American families (pp. 2-3), child development

(pp.3-5), and schooling (pp.5-6) – and then the ways in which faculty resist these

changes (pp. 6-7). He then explored the standard remedies and why they don't

work (pp. 7-8), before offering new strategies and approaches (pp. 8-13). He

argued that the answer "begins with perspective, not action, and with strategy, not

tactics" (p. 8), and he concluded that this approach "restores perspective and

renews hope" (p. 13). Evans himself noted that his "summary is far too brief and

oversimplifies social transitions that are enormously complex" (p. 3 of 13). This

article can be seen as either a valuable appendix to Evan's (1996) *The Hunan Side*

of School Change or as a succinct prequel to his 2001 volume, *Family Matters*.

Evans, R. (2000). Why a school doesn't run – or change – like a business. *Independent School
       Magazine.* Spring 2000. Washington, DC: National Association of Independent Schools.
       http://www.nais.org/ismagazinearticlePrint.cfm?print=Y&ItemNumber=144267

Here Evans acknowledged that "innovation is vital to preparing students for an

ever more challenging future" (p. 1), and noted that many school boards and

administrators attempt to "employ corporate-style approaches to recalcitrant staff"

in order to encourage change. However, Evans argued that "schools are much

more like families and religious institutions than like corporations and other

professional organizations… especially with respect to four key facets of school

life and culture: mission, operations, outcomes, and personnel" (pp. 1-2), which

he then proceeded to discuss in some detail. He then went on to discuss ways to

foster constructive change through motivation, innovation, clarity, focus, and

continuity (pp. 4-6). He concludes that it is best to help schools "fulfill their

mission in new ways by meeting them on their own terms, tempering our

expectations, concentrating our efforts, and celebrating their successes" (p. 6).

Though the article does not represent a formal study, it is a valuable perspective

for all those involved in professional learning communities or school change in general.

Evans, R. (2005). Reframing the achievement gap. *Phi Delta Kappan.* May 2005. Bloomington, IN: Phi Delta Kappan International.

Evans addresses the achievement gap between African American and Hispanic students, and their white and Asian American peers. While "the conventional wisdom has it that the achievement gap is a school problem" (p.1). However, Evans argues that "its origins lie neither in students not in schools" (p. 1), but rather in "economic and political realities that are mostly beyond the power of… schools to remedy" (p. 2). He feels that the suggestion that schools can overcome this gap (on their own) is "deeply flawed [because] it exaggerates the influence of schooling and underestimates the impact of the major contributors to the achievement gap, which occur outside the school" (p. 3). Evans included an overview of research that supports the limitations of school to impact the lives of students (pp. 3-7) and then offered suggestions for resetting educators' perspective, priorities, and expectations such that they focus on modesty (p. 9) and perseverance (p. 10). Ultimately he felt that "schools must be – but can only be – a part of the solution" (p. 11). This article is a succinct re-articulation of the core argument in Evans' (2001) *Family Matters*, and can serve as a valuable reference for educators involved in growing and sustaining professional learning communities.

Fleming, G. L., & Thompson, T. L. (2004). The role of trust building and its relation to collective responsibility. In Hord, S. M. (Ed.), *Learning together, leading together: changing schools through professional learning communities* (pp. 31-44). New York: Teachers College Press.

Fleming and Thompson examined "the role of trust and its relationship to building teacher collective responsibility" (p. 31). They focused on the "principal as the starting point" (p. 31) of trust-building and then offered a variety of lessons from principals and their teachers regarding trust. These lessons focused on elements of a professional learning community such as shared values and vision, supportive conditions, and collective learning and application (pp. 34-36). They then included lessons from teachers building trust with each other, again focusing on similar elements. Five case studies were considered in their discussion focused on evidence of trust and collective responsibility. Finally, they concluded that "professional learning communities rely on trust in order to function effectively" (p. 43) and that in order to be successful in building this trust, "principal and teachers alike must relinquish traditional views of their roles and define new roles that are better suited to meeting the needs of their students" (p. 43). Trust building is an important part of a professional learning community, and not only for its relationship to collective responsibility, as Fleming and Thomas discussed, but also because trust is a necessary condition for the sort of risk-taking necessary for PLCs to discover innovative new ways to help students learn (see Hipp, 2003, below).

Fullan, M. (2005). Professional learning communities writ large. In DuFour, R., Eaker, R. & DuFour, R. (Eds.), *On common ground: the power of professional learning communities* (pp. 209-224). Bloomington, IN: Solution Tree.

> Fullan opened this article by citing research demonstrating the effectiveness of professional learning communities at the school level. He then argued "if we do not examine and improve the overall system at three levels, we will never have more than temporary havens of excellence that come and go" (p. 210). His tri-level solution included the school community level (p. 211), the district or regional level (p. 212), and the state or province policy level (p. 214). He explored the challenges and changes at each of these levels before then suggesting four implications of this solution: 1. the need to address the problem of bias toward individualistic solutions (p. 217), 2. the radical need for systems thinkers in action (p. 218), 3. the importance of learning from each other as we go (p. 221), and the danger of waiting for others to act (p. 221). He concludes that "when all three levels… are engaged… it will be possible to make substantial progress" (p. 222). This article does not represent a formal study, but draws on Fullan's considerable experience working with school change. As such it makes a valuable addition to the professional learning community literature, especially for those who may have the opportunity to work with various levels of the public school system.

Hipp, K. K. (2003). Trust as a foundation in building a learning community. In Huffman, J. B., & Hipp, K. K. *Reculturing schools as professional learning communities* (pp. 109-120). Lanham, MD: ScarecrowEducation.

> Hipp provided a case study that "focuses on a middle school in the Midwest that has been involved… over the [previous] three years in trying to create a

professional learning community" (p. 110). She explored the "detrimental effects of allowing unattended feelings to fester and grow, ignoring voice, betrayal, and perceptions of favoritism" and "the effects of mistrust on risk, relationships, organizational health, and openness to change" (p. 110). Like, Beaty and Pankake, Hipp provides key areas of reflection, a challenge, and key questions for the reader, making the article something of an interactive learning experience that can be readily used as a professional development activity in a professional learning community.

Hipp, K. K., & Huffman, J. B. (2004). Two professional learning communities: tales from the field. In Hord, S. M. (Ed.), *Learning together, leading together: changing schools through professional learning communities* (pp. 71-83). New York: Teachers College Press.

Using Hord's five dimensions of a professional learning community as a guide, Hipp and Huffman presented two case studies of schools working to become professional learning communities. Through these two cases, they "showed how the dimensions of professional learning communities can assist schools already engaged in school improvement efforts by focusing those efforts, and by providing a means of assessing progress" (p. 82). They also demonstrated that "the PLC dimensions provide an organizational scheme that can facilitate thinking about change and interpreting changes" (p. 83). For anyone involved in school change, and particularly a professional learning community, this article will be a valuable illustration of Hord's theories in practice.

Lezotte, L. W. (2005). More effective schools: professional learning communities in action. In DuFour, R., Eaker, R. & DuFour, R. (Eds.), *On common ground: the power of professional learning communities* (pp. 177-192). Bloomington, IN: Solution Tree.

Marking the 40th anniversary of the Equal Educational Opportunity (EEO) study and the Effective Schools movement that followed in its wake, Lezotte explored why and how some schools make a difference in the lives of students (p. 178) and whether or not more schools can make a difference (p. 179). In the article he reviewed the seven correlates of effective schools (p. 179) and offers an overview of creating the effective schools process (pp. 180-183). He also discussed elements of the core leadership group, including their mission and their core beliefs (pp. 183-189). He concluded with a discussion of professional learning communities in action, suggesting that if the professional learning community had been part of "the school improvement lexicon when the Effective Schools journey began[, then] it would have been easier and more efficient to engage schools in the conversations around the research" (p. 190). This article may serve as a valuable reference for those interested in the change models that served as predecessors to the professional learning community.

Olivier, D. F. (2003). Reculturing a school in crisis. In Huffman, J. B., & Hipp, K. K. *Reculturing schools as professional learning communities* (pp. 129-140). Lanham, MD: ScarecrowEducation.

Olivier offered a case study that "examines the challenges of reculturing undertaken by one principal at a school deemed in crisis" (p. 130). The article earns a place in Huffman and Hipp's collection because "after struggling and achieving only minimal success, the principal's intent [was] to reculture the

school applying the dimensions of a professional learning community" (p. 130).

The article describes progress and challenges of the first year of a new

professional learning community, and then leaves the readers with key areas for

reflection, a challenge, and key questions to extend their learning. Those new to

the professional learning community process may find reading the article and

answering the questions a valuable experience to supplement their own.

Olivier, D. F. (2004). Against all odds: reculturing a troubled school. In Hord, S. M. (Ed.),
*Learning together, leading together: changing schools through professional learning
communities* (pp. 114-126). New York: Teachers College Press.

Olivier prepared a similar case study for Hord's collection. In it she reports on the

first three years of a new principal's efforts to build a professional learning

community. The first year focuses on fighting the status quo, challenging

expectations, and building trust. The second year focused on what she called

"speed bumps on the path of transition," transition through research, and PLC

initiation. Finally, the third year focused on the change from transition to

transformation, comprehensive school assessment, and a focus on results. Olivier

concluded that "a key factor in the change process at any school is the need to

address significant areas or issues in a manner that will result in sustainability" (p.

126) and cautioned that although her case study school had "made significant

strides, the changes that [were] bneing implemented [were] not yet internalized"

(p. 126). As an 'big picture' overview of the first three years of a professional

learning community, this article might be particularly valuable to those just

beginning the process of initiating a professional learning community at their site.

Schiller, E. (2006). Each one, teach one. In Stone, R., & Cuper, P. *Best practices for teacher leadership* (p. 145-146). Thousand Oaks, CA: Corwin Press.

Schiller focuses on the common professional learning community philosophy of "each one, teach one" in his article on empowering students as leaders. This philosophy calls for teachers to "designate student peer leaders in the classroom" p. 146). Schiller explains that teachers often don't use their surrounding resources wisely – especially their students. He emphasizes that "it is okay for the students to know more than the instructor" (p. 146) and advocates a philosophy of teaching that raises the level of expectation of students. This article does not represent a formal study, but does address an important element of professional learning communities that is often overlooked; in the same way that principals must allow teachers to serve as resources and leaders for the school, so must teachers allow students to serve as resources and leaders in the classroom.

APPLICATION

Introduction

This Knowledge Area Module (KAM) has focused on developing a working theory of school change that can be used to guide the integration of emerging educational technologies, such as video games and simulations. To produce a preliminary theory, the breadth portion of the KAM began with a synthesis of Senge, Evans, and Fullan's work on school change. Ten principles of school change were thus identified and explicated. To further develop this preliminary theory, this was followed in the depth portion of the KAM by a synthesis of prominent theories of professional learning communities. Prominent theorists included in this examination were DuFour & DuFour, Wald & Castlebury, Huffman & Hipp, Roberts & Pruit, Hord, and Stone & Cuper. Ten additional principles of school change (with a focus on professional learning communities) were identified and explicated.

Finally, this application portion of the KAM presents the design of a three-hour professional development workshop meant to provide educational leaders with guidance in facilitating the sort of school change necessary to successfully integrate emerging educational technologies, such as video games and simulations. All twenty principles of school change identified in the breadth and depth portions of the KAM are presented to and discussed with participants. Though the principles are applicable to a wide range of school changes, the workshop focuses on the integration of video games and simulations as educational technologies in a constructivist learning environment. In addition, theory is put into practice through the use of reflective staff development exercises designed for use in professional learning communities, a process that also serves to model for participants how to facilitate effective professional

development. The workshop, titled *Principles of School Change for Integrating Educational Technologies* is intended for an audience of site and district administrators, technology coordinators or directors, and early adopters among school faculty.

Though the delivery of this workshop is beyond the scope of this KAM, the workshop has been designed to be delivered as a product of the researcher's company, the *Educational Technology and Life Corporation*, which is a California-based consulting firm dedicated to professional development and school change, or as a CUEtoYOU professional development workshop for *Computer Using Educators, Inc.* (CUE), a non-profit professional association of educators dedicated to advancing student achievement through technology. The workshop would be hosted by a client site or district, by a county office of education such as the Orange County Department of Education (OCDE), or by a state entity such as the California Technology Assistance Project (CTAP).

Rationale

Ultimately, this professional development workshop is an effort to help educators to successfully integrate emerging educational technologies, such as video games and simulations, that might better reach and better serve a generation of students who are fundamentally different than those who came before. Prensky (2006) pointed out that "our kids are not like us" (p. 27). Having grown up in an era of ubiquitous cell phones, Internet access, and video games, students today can be considered *digital natives* (p. 28). If this is the case, then teachers are *digital immigrants*, who may have trouble learning the language and culture of the natives – and may speak with an *accent*, such as printing out an email to read it (p. 28). To extend the metaphor further, this workshop is meant to help educational leaders (and the teachers they lead) to bridge

the gap and become card carrying resident *digital aliens*. The hope is that large numbers of teachers might change their teaching style, perhaps even by incorporating video games and simulations in their repertoire of teaching tools, in order to address the students in their *native tongue* and better help them to achieve academic excellence.

Unfortunately, a great deal of organizational change is required for traditional schools to fully adopt and take advantage of promising new technologies such as video games and simulations. Not only are changes to physical and technical infrastructure necessary, but so is a significant amount of professional development, both so teachers can learn the necessary technical skills and so they can learn the pedagogical strategies prerequisite to the successful use of highly interactive technologies as part of a constructivist learning environment. Underlying attitudes and beliefs about school and about technologies such as video games may also have to be changed. Therefore, it is important for educators, educational technologists, and administrators to understand the nature and complexity of school change, and to act with this knowledge in mind when integrating new technologies. Thus another rationale behind the design of this professional development workshop is to provide educational leaders with guidance in facilitating the sort of school change necessary to successfully integrate emerging educational technologies, such as video games and simulations.

Such change requires meaningful (even transformational) learning, on the part of both classroom educators and those who lead the change efforts. Though this workshop is certainly not a sufficient learning experience in its own right, it provides a solid foundation in school change principles and a wide variety of resources that educational leaders can explore in order to further develop their own learning. In addition, it models and engages them in the sort of professional development appropriate for effective professional learning communities.

In keeping with professional learning community philosophies, the workshop is lead not by a trainer, instructor, or facilitator, but by a lead learner (Computer Using Educators, Inc, 2006). Also, in an attempt to remain true to these authors' underlying constructivist philosophies, the workshop includes many opportunities for active and collaborative learning.

Design and Justification

This professional development workshop, titled *Principles of School Change for Integrating Educational Technologies* has been designed for an audience of site and district administrators, technology coordinators or directors, and early adopters among school faculty. The workshop has been designed for anywhere from twelve to twenty participants. It is presumed that the participants are interested in facilitating the sort of school change necessary to successfully integrate new educational technologies, such as video games and simulations, into the teaching at their schools. The agenda (see Appendix A) follows the development of the breadth and depth portions of this KAM very closely, allowing time for an introduction to each author featured in the KAM, a presentation of all twenty principles of school change developed throughout the KAM, and time for four collaborative activities appropriate for professional development in a professional learning community.

One week prior to the face-to-face workshop, participants complete the E-xplore Assests activity (Kagaan, 2004, p. 25), which requires them to visit a web-based discussion board and compose an answer to a question online. The question they are asked to answer is the following:

> Based on your experience as an educator and educational leader, what ability, skill, or interest do you have that might be brought into play to facilitate the organizational change necessary to integrate new educational technologies such as video games and simulations?

In addition to composing their own answer to the question, each participant is expected to read the other participant's answers and to then provide a second post that includes their own summary of the group's answers, identifying "common themes and threads" (Kagaan, 2004, p. 25). This activity "provides advance preparation for participants in identifying and documenting the collective base of human resources that have to support their joint development work" (p. 24). In addition, the online discussion may draw out their underlying attitudes and assumptions about both school change and technologies such as video games and simulations, which can then be addressed (if necessary) before or during the face-to-face meeting.

The face-to-face workshop then begins with an additional welcome activity. Participants complete the Best and Worst activity (Kagaan, 2004, p. 31), which requires them to briefly describe "two contrasting scenarios, a 'best' and a 'worst'" (p. 32). Specifically, the scenarios they are asked to describe are the following: The best and worst implementation of a new technology at my school site.

Due to time constraints this occurs in small groups of three (with a group of two or four if necessary). A few minutes are allowed for participants to brainstorm before each participant must articulate their contrasting scenarios in approximately two minutes each. The entire activity lasts approximately fifteen minutes. This activity "is designed to help participants understand how their colleagues address professional challenges and what some of their underlying values are" (p. 31).

Following the welcome activity, the lead learner provides a brief introduction to the topic of school change. This includes an overview of the need for school change drawing from references gathered for the depth portion of the KAM, but cut from the initial essay. For instance, Fullan's (1993) argument that "we have an educational system which is fundamentally

conservative... more likely to retain the *status quo* than to change" (p. 3) will be shared and discussed. This segment also includes a brief introduction to each of the authors covered in the breadth section of the KAM - Senge, Evans, and Fullan.

At this point in the workshop, the lead learner introduces the ten principles of school change identified in the breadth essay. As in the essay, these are organized into three groups, those that relate to facilitating organizational change, those that relate to overcoming organizational resistance, and those that relate to integrating organizational change with society. Each of the ten principles is introduced and discussed in a period of approximately 5 minutes per principle. Though this is only a brief introduction to each principle, it does provide the participants with a broad foundation within the time provided. The discussion of each principle includes a succinct explanation of the principle and a supporting reference to each of the authors discussed thus far, Senge, Evans, and Fullan. The principal is then related to the integration of new educational technologies such as video games and simulations. An opportunity for participants to ask clarifying questions is allowed after each principle.

For instance, the first principle, "respect the realities of change," is briefly explained for the participants with the following phrase from the breath essay:

> To be successful, change agents must respect that organizational change is a complicated, difficult, and time-consuming process – especially in an educational institution.

Participants are asked to draw upon their own experience in support of this statement. Then, a perspective from each of the three breath authors is shared. In this case, the lead learner shares Senge's (1990) concept of a *learning organization*, an organization "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are

continually learning how to learn together" (p. 3). Evan's (1996) call for clarity and focus in educational change initiatives (p, 75) is also shared, as is Fullan's new paradigm of school change, which included elements of complexity theory (1999, p.4, 2003, p.21-23), evolutionary theory (1999, p. 6), and most importantly, capacity building (p. 9). The lead learner then takes a moment to relate these concepts to the implementation of video games and simulations as educational technologies. Ultimately, such implementations will only be successful if those responsible for the initiatives respect the realities of organizational change, including the need for change, the failure of past change efforts, the resulting need to be skilled change agents, the nature and complexity of organizational change, and the need for strong moral purpose behind the change they propose. The lead learner then checks for understanding by allowing participants to ask questions if necessary. The other nine principles are introduced with similarly succinct statements, supporting citations, and opportunities for reflection.

Following the introduction and discussion of the ten principles of school change, the lead learner then engages participants in a second face-to-face activity. Participants divide into small working groups of three to four to complete the View From Downtown activity (Kagaan, 2004, p. 78). The lead learner provides the following questions for their consideration:

- "How would school district leaders view our emerging proposals, in terms of their most prominent role-related concerns? How would union or association leaders view our emerging proposals, in terms of their most prominent role-related concerns?
- How would parent, business, and community leaders view our emerging proposals, in terms of their most prominent role-related concerns?
- How would these groups view the impact of our work here on the quality of teaching and learning in the school?
- To what extent would these groups label our work as serving purposes they see as legitimate?" (Kagaan, 2004, p. 79)

A discussion of approximately fifteen minutes focused on these questions follows. This is an opportunity for the participants to not only reflect on what they have learned, but also to experiment with systems thinking as they answer and discuss these questions. Also, this activity "helps participants gain perspective on the political viability of the directions they are considering for improved teaching and learning in the school" (p. 78). Though time does not permit reporting back to the group as a whole, every participant is actively involved in this discussion and the active use of the principles they are learning. At the end of this activity, the workshop is half over, and participants are given a ten-minute break.

When participants return from their break, the workshop moves into material covered by the depth portion of the KAM. The lead learner begins by providing a brief (ten-minute) introduction to professional learning communities, including DuFour and Eaker's (1998) definitions of the terms *professional*, *learning*, and *communities* (pp. xi-xii), and Hord's (2004) "five major themes: supportive and shared leadership, shared values and vision, collective learning and application of that learning, supportive conditions, and shared personal practice" (p. 1). This segment also includes a brief introduction to each author cited in the depth essay, including Wald & Castlebury, Huffman & Hipp, Roberts & Pruit, and Stone & Cuper.

The lead learner introduces the ten principles of school change for professional learning communities identified in the depth essay. As in the essay, these are organized into three groups, those that relate to facilitating organizational change, those that relate to overcoming organizational resistance, and those that relate to integrating organizational change with society. Each of the ten principles is introduced and discussed in a period of approximately 5 minutes per principle. Though this is only a brief introduction to each principle, it does provide the participants with a broad foundation within the time provided. The discussion of each principle

includes a succinct explanation of the principle and a supporting reference to each of the relevant authors – usually the DuFours (and their coauthors) and one other source. The principal is then related to the integration of new educational technologies such as video games and simulations. An opportunity for participants to ask clarifying questions is allowed after each principle.

For instance the second principle, "establish mission, vision, values, and goals," is briefly explained for the participants with the following phrase from the depth essay:

> Establishing a professional learning community (PLC) is important to the success of school change initiatives, and a critical step in establishing a PLC is to generate a shared sense of mission and vision as well as shared values and goals.

Participants are asked to draw upon their own experience in support of this statement. Then, a perspective from some of the depth authors is shared. In this case, the lead learner shares DuFour and Eaker's (1998) discussions of mission statements (p. 58), vision statements (p. 62), shared values (p. 88), and shared goals (p. 100). This is further supported by Roberts & Pruitt's discussion of mission statements (p. 30), Wald & Caslteberry's (2000) descriptions of shared vision (p. 20), Huffman & Hipp's (2003) model for professional learning communities (which also included shared values), and Hord's (2004) call for "clear goals for high-quality learning" (p. 12). The lead learner then takes a moment to relate these concepts to the implementation of video games and simulations as educational technologies. An educational leader responsible for the integration of video games and simulations into the learning culture of a school must also offer this level of specificity and guidance in order for their visions (or more importantly, the school's shared vision for these technologies) to be realized. The lead learner then checks for understanding by allowing participants to ask questions if necessary. The other principles are introduced with similarly succinct statements, supporting citations, and opportunities for reflection.

Following the introduction and discussion of the ten principles of school change for professional learning communities, the lead learner then engages participants in a third and final activity. Participants pair up and complete a Dashing Dual Interview activity (Kagaan, 2004, p. 40). To begin the activity, the lead learner provides the following prompt to the participants:

> Which of the principles of school change will have the greatest impact on your future practice as an educational leader – and why?

This prompts the participants to reflect not only what they have just learned during the workshop, but also on their past and future practice as well. This supports their development as reflective practitioners. Once any clarifying questions about the prompt have been addressed, the pairs of participants then "take turns interviewing each other, ensuring that each person in the pair is given equal [time to talk]" (p. 41). The prompt serves as the driving question behind the interview, though the interviewee may of course ask follow-up questions. Following a few minutes for brainstorming, each interview should take approximately five minutes due to time constraints. This activity "presents participants with useful information about each other's views, and at the same time promotes active listening" (p. 40).

The final ten minutes of the workshop prior to the reflection and evaluation is dedicated to a brief hypothetical discussion of how video games and simulations might not only benefit from the judicious application of these principles of school change, but might also be powerful tools for use in school change efforts and in professional learning communities. Quotes from authors cited in this KAM are used to introduce concepts. For instance, video games and simulations can be used to promote (in students and faculty) what DuFour, Eaker, and DuFour (2005) call "learning by doing... [with a] focus on character growth, teamwork, reflection, and literacy" (p. 131).

Finally, ten minutes remain for participants to individually reflect on what they have learned during the workshop and to complete an online evaluation of the workshop. The results of the online survey are then used to improve future iterations of the workshop.

The three-hour format of this workshop fits the needs of many professional development opportunities. However, it provides only the bare minimum of time for participants to process the theories presented and discussed. The workshop could easily be expanded to a full-day format while keeping the same basic structure and allowing considerably more time for discussion and reflection. The workshop could be further expanded to a multiple-day format through the addition of more interactive activities. Multiple days might best be offered once a week or once a month in order to allow time for additional practicum between sessions.

Theory to Practice

The breadth portion of this KAM presented a preliminary working theory of school change based on a synthesis of work by Senge, Evans, and Fullan. This working theory is translated into practice through this application portion of the KAM. Ten principles of school change developed in the breadth essay are presented to and discussed with participants during the first half of the professional development workshop described above. Participants are engaged with these principles through active and collaborative learning activities and might in the future apply the principles to their work as educational leaders.

The depth portion of the KAM further developed the preliminary working theory developed in the breadth portion by further synthesizing the work of DuFour & DuFour, Wald & Castlebury, Huffman & Hipp, Roberts & Pruit, Hord, and Stone & Cuper. This theory, too, is

translated into practice through this application portion of the KAM. An additional ten principles

of school change (for professional learning communities) are presented to and discussed with

participants during the second half of the professional development workshop. Participants are

also engaged with these principles through active and collaborative learning activities and might

in the future apply the principles to their work as educational leaders.

In keeping with professional learning community philosophies, the workshop is lead not

by a trainer, instructor, or facilitator, but by a lead learner (Computer Using Educators, Inc,

2006). Also, in an attempt to remain true to these authors' underlying constructivist philosophies,

the workshop includes many opportunities for active and collaborative learning.

Like the breadth and depth portions of the KAM, this application portion aims to provide

educational leaders with guidance in facilitating the sort of school change necessary to

successfully integrate emerging educational technologies, such as video games and simulations.

The hope is that participants will indeed apply these theories in their own roles as educational

leaders and thus contribute to ensuring that the future is indeed a better place for their students.

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APPENDIX A

Agenda for Professional Development Workshop

Principles of School Change for Integrating Educational Technologies
A Three-Hour Workshop

Pre Activity
        E-xplore Assets (Kagaan, 2004, p. 24)

Welcome Activity (15 minutes)
        Best and Worst (Kagaan, 2004, p. 31)

Introduction to School Change (5 minutes)
        The need for school change
        Senge
        Evans
        Fullan

Ten Principles of School Change (45 minutes)
        Facilitating Organizational Change
            1. Respect the realities of change.
            2. Use systems thinking.
            3. Support personal learning.
            4. Support collaborative learning.
            5. Develop leadership.
        Overcoming Organizational Resistance
            6. Respect the realities of resistance.
            7. Remember psychological factors.
            8. Sustain the process.
        School Change and Social Change
            9. Include family and the community.
            10. Effect positive social change.

Activity (15 minutes)
        The View From Downtown (Kagaan, 2004, p. 78)

BREAK (10 minutes)

Introduction to Professional Learning Communities (10 minutes)
>   DuFour, DuFour, and co-authors
>   Other PLC Authors

Ten Principles of School Change for Professional Learning Communities (45 minutes)
>   Facilitating Organizational Change
>   >   1. Respect the realities of change.
>   >   2. Establish Mission, Vision, Values, and Goals
>   >   3. Focus on what's important.
>   >   4. Develop leadership.
>   >   5. Develop teaching (including professional development).
>   Overcoming Organizational Resistance
>   >   6. Respond to obstacles, challenges, and barriers.
>   >   7. Sustain the change process.
>   >   8. Develop learning.
>   School Change and Social Change
>   >   9. Include the family and community.
>   >   10. Effect positive social change.

Activity (15 minutes)
>   Dashing Dual Interview (Kagaan, 2004, p. 40)

Video Games, Simulations, and School Change (10 minutes)
>   How might video games and simulations help the school change process?

Reflection and Evaluation (10 minutes)
>   Online Evaluation