Teacher Candidates as Innovative Change Agents

Lucia L. Yu and Evan Thomas Ortlieb
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Confronting the educational directives of high-stakes testing and accountability is achievable through inference and implementation of innovative change. Using the lens of learners as inquirers, teacher candidates designed and implemented action research projects to create alternate instructional strategies, management systems, and methods to reach disenfranchised students. The primary investigators challenged their teacher candidates to exercise *inference for innovation* — expanding their potential for critical thinking in a society of transition, and manage *transformational skills* — allowing them to be ongoing change agents.

Nearly one decade ago, elementary classroom teachers experienced a dramatic societal change as they confronted challenges of greater accountability and increasing demands of more diverse and inclusive classrooms in urban areas (AACTE, 2001; Arends, 2001). Raising students' scores on both the traditional standardized tests and high-stakes tests has become the sole focus; meanwhile, teachers are criticized for condensing their instruction to test preparation, failing to lead students to become critical, creative, and curious thinkers (Lemann, 1999). Qi (2007) found that teachers and learners neglected the context in which learning was to occur, while emphasizing the testing situation and assumed components of the test. If American schools are to regain their prominence as leaders in education, quality of instruction and learning must be central foci; a societal change is in order. Stephens et al. (2008) identified five critical issues to be considered in assessing the potential for change: 1) sustainability challenges, 2) financing structure and independence, 3) institutional organization, 4) the extent of democratic processes, and 5) communication and interaction with society.

Freire (1993) declared that society requires the development of an especially flexible, critical spirit when it begins to transit from one epoch to another. Change agents must be context-specific, and based on identifying, synthesizing, and integrating common themes (Stephens et al., 2008). Arthur Wise (2000), president of the National Council for Accreditation of Teacher Education (NCATE), similarly expressed that teachers should use strategies to develop critical thinking for problem solving. It is only natural to focus on critical thinking skills; teacher educators must serve as change agents if success is attainable (de Leon-Carillo, 2007).

Literature Review

Inference

This study conducted a one-group, pretest-posttest, pre-experimental design to explore pre-service teachers' perceptions regarding school violence. First, 95 pre-service educators were asked to complete an online, anonymous survey. Next, the participants, 20 members of the same English/Language Arts Methods class, were taught a three-part school violence curriculum. Finally, a

posttest, optional and anonymous, was administered to the 20 participants.

Behaviorism has been the dominant theory that views learning as a response to stimuli existing in the environment. In this stimulus-response (S-R) notion rooted in laboratory settings, humans are passive reactors—learning through the process of imitation, reinforcement, and shaping (Norton, 2003). The S-R unit can be used to examine simple tasks, but not complex behavior. Humans are thinking beings (Vygotsky, 1934; Zahorik, 1995) bearing insights, reasoning power, and the ability to make decisions. They have minds to select stimuli with which to respond and to choose the best response that makes sense to them. This is also known as the S-MIND-R unit, and it explains the rational, logical, and cognitive processes that occur between stimuli and responses.

Charles Peirce thought that anomalies, which humans encounter in their lived experiences, will drive the process of inquiry into the motion of inference (Neilsen, 1989). Peirce's triadic model of inference (see Figure 1) is an endless cycle of reasoning, (Cunningham, 1992; 1998) which is composed of the following processes:

1. Abduction: Learners generate hypotheses from their life experience, prior knowledge, conscience, and/or sociocultural modes to deal with the anomalies
2. Deduction: Learners keep testing hypotheses against their social context
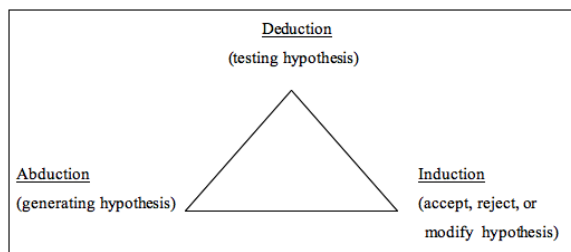3. Induction: Learners confirm, reject, or modify the previous hypotheses

Figure 1. Peirce's Triadic Model of Inference

Findings in neurobiology reveal that newborn babies are born with the intellectual competency to instinctively respond to the environment for survival and for the exploration of the new world (Gardner, 1985; John-Steiner, 1985). Education is used to further mobilize this intellectual competence based on learners as inquirers (Wray, 1999), not the passive transmission of knowledge (Short, Haste, & Burke, 1996). Instruction as inquiry can be summarized to have the following purposes:

(1) activate prior knowledge, (2) acquire knowledge, (3) understand knowledge, (4) use knowledge, and (5) reflect on knowledge (Zahorik, 1995).

Change Agentry

From the historical perspective on education, we are confronting many struggles just to survive (Shannon, 1990) – such as the concepts of teaching, approaches in literacy, the reform of the school system, the creation of standardized tests for a classless society, and educators' reactions in terms of alternate assessment. Many enthusiastic educators acting as change agents feel insecure, uncomfortable, or dissatisfied with the prevailing instructional strategies or systems in place; yet, they often initiate innovation for the survival of their communities (Crawford & Deer, 1993; Foss & Kleinsasser, 1996; Klein, 2001, 2004; Schuck, 1996; Tillema & Knol, 1997). Usually the change agents face both expected and unexpected resistance while trying to convince their colleagues of the benefits of implementing the innovation in the institution (Lothian, 2005). For example, there are still educational researchers and practitioners arguing over quantitative versus qualitative methods of research as well as skills-based versus whole language instruction in reading education.

In *The ABCD's of Managing Change* (1986), Dormant, a professor and change consultant in education, proposed a conceptual framework for the practice of change agentry:

A. Adopters – those who will accept, implement, and utilize the innovation
B. Black box – the innovation invented by the change agents to deal with the anomaly, and to improve the operation in the community
C. Change agent(s) – those who feel unsafe, uncomfortable, dissatisfied with the current situation in the community and plan to change. Change agents are innovators who initiate the change, schedule the change, create the climate for change, find the support for change and the resistance to change, involve the people who support change, convince the people who resist the change, and launch or modify the change.
D. Domain – where the innovation is implemented (the climate for change).

Implementing a series of management skills is necessary for change to occur (Elton, 2003), such as "technology strategies" for the evaluation of innovation; "interpersonal strategies" also deal with the resistance in the domain, to create opportunity for change, to assess the climate for change, to implement human performance by engaging the colleagues into the change, and to be effective leaders to direct the change.

Objective

To be human is to engage in relationships with others and with a society (Sun, 2002). When a society begins to move from one epoch to another, it requires the development of an especially flexible, critical spirit, or critical consciousness that is integrated within reality (Freire, 1993) and led to critical action for the epochal transition (Shirilla, Gass, & Anderson, 2009). In a series of service-learning activities, the investigators strove to awaken teacher candidates' critical consciousness for culture and society in the increasingly diverse and multicultural urban context. Based on the assumption that teaching and learning are inquiry, not the transmission of knowledge (Short, Harste, & Burke, 1996; Wray, 1999), investigators conceptualized inference (Cunningham, 1992; 1998) and change agentry (Dormant, 1997) within teacher education to give teacher candidates opportunities to become change agents of critical thinking. Through the integration of teaching, research, and service within service-learning experiences, teacher candidates led various inquiries within two public elementary schools in the Southeast.

Methods

This project allowed 42 participants to examine their own educational practices and those being implemented in a single, elementary-grade level classroom in which they were fulfilling practicum requirements as undergraduate and graduate students of a four-year university. Designed with Watts' (1985) notions of self-reflection, collaboration, and innovation, these single-teacher, action-research investigations were facilitated by university faculty, but conducted almost entirely by university students. At the core of any action research project is the necessity of disciplined inquiry managed with the intent that the research will inform and potentially change instructional practices in the future. Participants were encouraged to keep a narrow focus in hopes of fostering innovative changes with measureable outcomes. Without being unrealistic to expect the teacher candidates to make system-wide transformations, teacher candidates were encouraged to collect data on events and ongoings within their classrooms. Then, participants coded data based on whether or not the observed behavior directly led to increased student participation and comprehension of material. Afterwards, student investigators employed their intellectual freedom (Smith, 1988) towards designing innovative strategies for their elementary students. The following steps summarize their methods of inquiry by first making an inference for innovation and then creating and managing change-related skills:

Part 1: Inference for innovation

1. Write observations and critiques on the classroom setting, classroom management, students' learning behaviors, small group activities, teacher's talk, and strategies the coordinating teachers use.
2. Think about alternate strategies that could be used or modifications to existing ones to impact student achievement.
3. Find five supporting research-based articles related to the proposed strategy. The theories should be able to support the implementation of the proposed strategy.
4. Talk with peers and the coordinating teacher about the proposed strategy.
5. Write lesson plans or proposals for the implementation of the proposed strategies they intend to use.
6. Apply the proposed strategies within instruction during practicum experiences.
7. Collect student artifacts from the field sites.
8. Analyze the data and reflect on the effectiveness of the strategy.
9. Confirm, reject, or modify the strategy execution for future implementation.
10. Keep a field journal.

Part 2: Managing Change Skills

1. Identify the four factors of the ABCD's of Managing Change (Dormant, 1986) based on the school environment.
2. Create a climate for change.
3. Demonstrate the strength of the innovation and the weaknesses of the previous strategy from aspects of security, perfection, advantages, convenience, economy, and durability.
4. Analyze possible support systems and the expected resistance inside the institution.
5. Use linguistic, logical, and interpersonal intelligences to justify your reasoning (Gardner, 1985).
6. Implement the change.
7. Assess the change periodically and modify accordingly.

Results

The graduate and undergraduate students in teacher education explored alternate means for assisting in student achievement during their elementary-school field experiences. Their enthusiastic proposals for change can be categorized into three topics:

1. *Instructional strategies*
   Most teacher candidates were interested in pursuing instruction related to methods used in reading education. They wrote proposals such as: "using invented spelling instead of the conventional spelling for composition

writing in the first draft," "more than one answer - multiple ways of reading responses," "authoring circle for composition writing," "VAKT for phonemic awareness," "sight, sound, and sense for poetry," and "using technology to tutor at-risk early readers."

2. *Classroom management*
   Some teacher candidates explored alternate methods of more-effective classroom management (primarily based on positive reinforcement).

3. *Integrity*
   Others pursued alternative methods to reach low-achieving students and their parents. The teacher candidates were interviewed at the conclusion of the semester so as to share and evaluate their implementations. The most common conceptualization among the teacher candidates was the difficulty in implementing the change. One participant said, "The students did not want to accept the implemented change even more than the classroom teacher," while another felt that "it was a lot of work to get it started; however, once I implemented the change, managing it was the easy part." These participatory students and others gained firsthand experience of the difficulties that lie in shifting from one style of instruction to another. Through encouraging the elementary students and sharing the purpose for the change, progress was made easier for all parties. One teacher candidate even said that she was surprised at how interested her classroom teacher was in modifying one method of classroom management (in this case, from centered on discipline to positive reinforcement). Albeit not a simple task, commitments to finding new and better ways to teach, manage classroom behavior, and reach learners with imminent needs is at the core of teacher education. Participatory teacher candidates developed knowledge, skills, and a disposition for effective teaching through conceptualizing "inference" and "change agentry" into their real-world practicum teaching experiences.

Conclusions

Inference expands teacher candidates' potential for critical thinking in a society of transition. Change management skills keep these future change agents in-line with educational objectives. Teacher candidates and classroom teachers alike have the opportunity to go beyond preparing students to pass standardized tests, and prepare them to be independent thinkers and decision makers. Teacher candidates followed Shirilla, Gass, and Anderson (2009) suggestions in seizing the moment to instill change within instructional styles and procedures in elementary schools. Through self-reflection, inquiry, and evaluation, classroom teachers can use action research, inference and provide critical consciousness for changes in their own educational world (Freire, 1993; Tripp, 2003; Watts, 1985). Since inference is an endless cycle of reasoning, and society is still in a phase of transition, there is a perfect opportunity to make this transition towards inquiry-based learning. Individual changes, like those of these teacher candidates, are merely hidden streams in the beginning, but they will eventually overflow into the mainstream. Inevitably, educators and teacher educators will struggle to continue, and continue to struggle towards these necessary goals (Shannon, 1990).

References

Alvarez, H. K. (2007). The impact of teacher preparation on response to student aggression in the classroom. *Teaching and Teacher Education, 23*, 1113-1126.

AACTE. (2000). *AACTE Brief*. Washington D.C.: American Association of Colleges for Teachers of Education.

Arends, R. I. (2001). *Learning to teaching*. New York: McGraw-Hill.

Crawford, K., & Deer, E. (1993). Do we practice what we preach?: Putting policy into practice in teacher education. *South Pacific Journal of Teacher Education, 21*(2), 111-121.

Cunningham, J. C. (1992). Beyond educational psychology: Steps toward an educational semiotic. *Educational Psychology Review, 4*, 165-194.

Cunningham, J. C. (1998). Cognition as semiosis: The role of inference. *Theory and Psychology, 8*, 827-840.

de Leon-Carillo, C. (2007). Filipino pre-service education students' preconceptions of teacher roles viewed through a metaphorical lens. *Asia-Pacific Journal of Teacher, 35*(2), 197-217.

Dormant, D. (1986). The ABCD's of managing change. In M. Smith (Ed.) *Introduction performance technology*. Washington, DC: The National Society for Performance and Instruction.

Dormant, D. (1997). Planning change: past, present, future. In R. Kaufman, S. Thiagarajan, and P. MacGillis (Eds.), *The guidebook for performance improvement: Working with*

individuals and organizations. San Francisco: Pfeiffer.

Elton, L. (2003). Dissemination of innovations in higher education: A change theory approach. *Tertiary Education and Management, 9*(3), 199-214.

Foss, D. H., & Kleinsasser, R. C. (1996). Preservice elementary teachers' views of pedagogical and mathematical content knowledge. *Teaching and Teacher Education, 12,* 429–442.

Freire, P. (1993). *Education for critical consciousness*. New York: The Continuum Publishing Company.

Gardner, H. (1985). *Frames of mind*. New York: Basic Books.

John-Steiner, V. (1985). *Notebook of the mind*. Albuquerque: University of New Mexico Press.

Klein, M. (2001). Constructivist practice, preservice teacher education and change: The limits of appealing to hearts and minds. *Teachers and Teaching: Theory and Practice*, 7(3), 257-269.

Klein, M. (2004). The premise and promise of inquiry based mathematics in pre-service teacher education: A poststructuralist analysis. *Asia-Pacific Journal of Teacher Education, 32*(1), 35-47.

Lemann, N. (1999). *The big test: The secret history of the American meritocracy*. New York: Farrar, Straus and Giroux.

Lothian, J. A. (2005). Creating change and staying connected through collaboration. *Journal of Perinatal Education, 14*(4), 36-39.

Neilsen, A. R. (1989). *Critical thinking and reading: Empowering learners to think and act.* Urban, IL: National Council of Teachers of English.

Norton, D. E. (2003). *The effective teaching of language arts*. Upper Saddle River, NJ: Merrill Prentice-Hall, Inc.

Qi, L. (2007). Is testing an efficient agent for pedagogical change? Examining the intended wash back of the writing task in a high-stakes English test in China. *Assessment in Education: Principles, Policy and Practice, 14*(1), 51-74.

Shannon, P. (1990). *The struggle to continue*. Portsmouth, NH: Heinemann.

Shirilla, P., Gass, M., & Anderson, S. (2009). The Project Adventure RESPECT Program: Implementing experientially-based intervention as an agent for whole school social and academic change in the era of evidence-based practice. *Education, 37*(1), 75-86.

Short, K. G., Harste, J. C., & Burke, C. (1996). *Creating classrooms for authors and inquirers*. Portsmouth, NH: Heinemann.

Schuck, S. (1996). *Learning and teaching mathematics: Interpreting student teachers' voices*. Unpublished doctoral thesis, Sydney: UTS.

Smith, F. (1988). *Insult to intelligence*. Portsmouth, NH: Heinemann.

Stephens, J. C., Hernandez, M. E., Roman, M., Graham, A. C., & Scholz, R. W. (2008). Higher education as a change agent for sustainability in different cultures and contexts. *International Journal of Sustainability in Higher Education, 9*(3), 317-338.

Sun, Q. (2002). *Learning to be human: The implication of Confucian perceptions on ends and means for the practice of modern adult education*, presented at the Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education, DeKalb, IL.

Tillema, H. H., & Knol, W. E. (1997): Promoting student teacher learning through conceptual change or direct instruction. *Teaching and Teacher Education, 13*(6), 579-595.

Tripp, D. (2003). Action Inquiry, *Action Research e-Reports,* 017, Retrieved March 20, 2009, from: www.fhs.usyd.edu.au/arow/arer/017.htm

Vygotsky, L. (1934). *Thinking and speaking*. Retrieved May 18, 2008, from The Vygotsky Internet Archive, http://www.marxists.org/archive/vygotsky/index.htm

Watts, H. (1985). When teachers are researchers, teaching improves. *Journal of Staff Development, 6*(2), 118-127.

Wise, A. (2000). *AACTE brief*. Washington, D.C: American Association of Colleges for Teacher Education.

Wray, D. (1999). *Inquiry in the classroom*. Ontario, Canada: Pipping Publishing Corp.

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Author Notes
Lucia L. Yu

Evan Thomas Ortlieb

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