

2016 · Volume 82-3

**International Journal for Professional Educators**

The Delta Kappa Gamma Bulletin

**Early-Learning Environments**



**The Delta Kappa Gamma Bulletin**  
**International Journal for Professional Educators**

2016 • Volume 82-3

**Early-Learning Environments**

## The Delta Kappa Gamma Bulletin

### *Editorial Board*

Barbara Perry-Sheldon, EdD, 2014-2018  
Professor Emerita of Teacher Education,  
North Carolina Wesleyan College  
Rocky Mount, North Carolina

Nora L. Pollard, PhD, 2014-2018  
Senior Disability Policy Consultant  
Educational Testing Service  
Princeton, NJ

Angela E. Quinn, 2012-2016  
Director of Instruction  
Pontotoc City School District  
Pontotoc, Mississippi

Margaret Trybus, EdD, 2012-2016  
Associate Dean, College of Graduate and Innovative Programs  
Professor, Educational Leadership  
Concordia University  
Chicago, Illinois

---

Judith Merz, EdD, Editor  
Doctoral Advisor, Educational Leadership  
Nova Southeastern University  
Ft. Lauderdale, Florida

---

The *Bulletin*, an official publication of The Delta Kappa Gamma Society International, promotes professional and personal growth of members through publication of their writings. Three online issues per year, subtitled *International Journal for Professional Educators*, focus on research-based and documented works—applied and data-based research, position papers, program descriptions, reviews of literature, and other articles on announced themes or other topics of interests to educators. Two print issues, subtitled *Collegial Exchange*, focus on articles based on practice and experience related to education, the Society, women, and children, as well as personal reflections and creative works. All five issues include book and technology reviews, letters to the editor, poetry, and graphic arts.

Submissions to the *Bulletin*, a refereed publication, are reviewed by the Editorial Board and the Society editorial staff. Selection is based on relevance of the topics addressed, accuracy and validity, contribution to the professional literature, originality, quality of writing, and adherence to Submission Guidelines (see page 77). Editorial Board members evaluate each submission's focus, organization, development, readability, and relevance to the general audience of *Bulletin* readers. Due to the diversity of the *Bulletin* audience, material that expresses a gender, religious, political, or patriotic bias is not suitable for publication.

Please send materials to [bulletin@dkg.org](mailto:bulletin@dkg.org) or to *Bulletin* Editorial Staff, The Delta Kappa Gamma Society International, P.O. Box 1589, Austin, TX 78767-1589. The Delta Kappa Gamma Society International, P.O. Box 1589, Austin, TX 78767-1589.

*The Delta Kappa Gamma Bulletin* (ISSN 0011-8044; USPS 715-850; IPM 0302295) is published five times each year by The Delta Kappa Gamma Society International, 416 West 12th Street, Austin, Texas. Mailing address: P.O. Box 1589, Austin, TX 78767-1589. Periodicals Postage paid at Austin, Texas. Subscription, U.S. \$31 per year; single copies, \$7 each. International dues include subscription to *The Delta Kappa Gamma Bulletin*. Views expressed do not necessarily agree with positions taken by The Delta Kappa Gamma Society International.

POSTMASTER: Send address changes to *The Delta Kappa Gamma Bulletin*  
P.O. Box 1589, Austin, TX 78767-1589

# The Delta Kappa Gamma Bulletin

## International Journal for Professional Educators

2016 • Volume 82-3

Published by the Delta Kappa Gamma Society International

*The Delta Kappa Gamma Society International  
promotes professional and personal growth of women  
educators and excellence in education.*

<b>Call for Submissions</b> .....	4
<b>From the Editor</b> .....	5
<b>On the Theme: Early-Learning Environments</b>	
Early-Learning Environments: Resources	
<i>Curated by the Editor</i> .....	6
Exploration of Early-Childhood Learning Environments	
<i>By Jeanine Jechura, Deborah G. Wooldridge, Cynthia Bertelsen, and Gloysis Mayers</i> .....	9
Teachers' Perception of Primary Literacy Preparation: Has it Improved?	
<i>By Amanda Eller and E. Michael Poe</i> .....	16
Principal and Literacy Coach: Collaboration and Goal Alignment	
<i>By Tina Selvaggi</i> .....	28
Translational Research in Education: The Benefits of a Partnership that Examines the Impact of Professional Development on Early-Literacy Outcomes	
<i>By Theresa Abodeeb-Gentile, Joan Pedro, and John Tapper</i> .....	35
Experiencing the Common Core State Standards for Mathematical Practices	
<i>By Kyoko Johns</i> .....	48
Illuminating the Complex: Seeing Developmentally Appropriate Practice in Beloglovsky and Daly's <i>Early Learning Theories Made Visible</i>	
<i>By Angie Quinn</i> .....	53
Exploring Diversity and Professionalism with Preservice Teachers using Film Clips as Prompts	
<i>By Kim Holdbrooks Townsel</i> .....	55
Effects of Teaching in a Science Summer Camp on the Science Self-Efficacy of Preservice Teachers	
<i>By Bridget A. Franks, Sheryl L. McGlamery, and Kristin VanWyngaarden</i> .....	63
<i>SignUpGenius: The Instructors' Friend</i>	
<i>By Jude A. Matyo-Cepero and Linda K. Lilienthal</i> .....	74
<b>Submission Guidelines</b> .....	77
<b>Submission Grid</b> .....	78

## Call for Submissions

Members are encouraged to submit manuscripts for consideration by the *Bulletin* Editorial Board. The Delta Kappa Gamma *Bulletin: Journal* accepts research-based articles including Action/Classroom Research, Qualitative Research, Quantitative Research, Reviews of Literature, Program Descriptions, Position Papers, and Book/Technology Reviews. The Delta Kappa Gamma *Bulletin: Collegial Exchange* accepts articles of a more practical, personal nature, including Classroom and DKG Practices/Programs, Viewpoints on Current Issues, Personal Reflections or Anecdotes, Inspirational Pieces, Biographies and Interviews, Book and Technology Reviews, and Creative Writing.

Submissions should be focused, well organized, effectively developed, concise, and appropriate for *Bulletin* readers. The style should be direct, clear, readable, and free from gender, political, patriotic, or religious bias. For more detailed information, please refer to the Submission Guidelines on page 77 and the Submission Grids on page 78.

Listed below are the deadlines and, where appropriate, themes. Although there is a suggested theme for each issue of the *Bulletin: Journal*, manuscripts on all topics are welcome. The *Bulletin: Collegial Exchange* is not theme-based.

***Journal: Global Education and International Perspectives (82-5; Online)***

*(Postmark deadline is March 1, 2016)*

Student Achievement • School/Community Partnerships •  
Access and Equity • World Fellowship • Schools for Africa

***Journal: Early-Career Educators (83-1; Online)***

*(Postmark deadline is May 15, 2016)*

Attracting • Supporting • Retaining • Advancing •  
Mentoring by Chapter Members

***Collegial Exchange (83-2; Print)***

*(Postmark deadline is August 1, 2016)*

No designated theme

***Journal: Systems to Address Quality Teaching (83-3; Online)***

*(Postmark deadline is October 1, 2016)*

Professional Development • Certification • Alternate Routes •  
Early-Career Educators • Defining Quality • National Board Certification

***Collegial Exchange (83-4; Print)***

*(Postmark deadline is December 15, 2016)*

No designated theme

Submit all materials to:

***Bulletin* Editorial Staff**

**bulletin@dkg.org**

## From the Editor

In my earliest years of studying to be an educator—before I realized that teaching high school English was my true passion—I aspired to teach in the primary grades. My reasoning was the generally unarguable ideas that young children are the most receptive, engaged, and engaging learners and that the early-childhood years are simply *the* most important for education. Later, in the course of a 35-year career in the same district, including work at the elementary, high school, and district levels, this predisposition was reinforced again and again. As an elementary principal, I reveled in the openness and enthusiasm of young learners—and worked with concern for those whose home life, physical issues, or learning disabilities caused them to struggle. As a high school vice principal in charge of discipline, I recognized repeatedly that students’ paths—academic and otherwise—had been molded many years earlier, well before they entered the middle grades and certainly before they reached me. By the time I ended my career in a central office position, I had been able to witness the full preK-12 spectrum of progress—or lack thereof—for numerous students and, with few exceptions, the child’s early years were critical and predictive of his or her journey. As with many educators, my experience persistently reinforced the importance of early-learning environments—the topic for this issue of the *Bulletin*.

The issue begins with a curation of resources for those sharing the world-wide concern for early-learning environments and issues. Considering the concept of environments more literally, Jechura, Wooldridge, Bertelsen, and Mayers discuss effective spaces to support young learners in integrated, play-based learning experiences. In research pieces, Eller and Poe focus on to what extent new teachers perceive themselves to be prepared to provide primary literacy education, and Selvaggi looks at the importance of collaboration and goal alignment by principals and literacy coaches in elementary environments. Abodeeb-Gentile, Pedro, and Tapper bring the consideration of theory and practice full circle in a description of translational research—a partnership of university and school-based personnel to examine the impact of professional development on early-literacy outcomes. Editorial board member Quinn also provides insights on the theme through a review of a book detailing theory and developmentally appropriate practice for early-childhood learning.

Other articles in the issue focus on effective preparation of preservice teachers. Johns translates Common Core State Standards into practice for those aspiring to be mathematics educators. Focusing on helping preservice teachers explore the key concepts of diversity and professionalism, Townsel promotes the use of film clips as prompts for discussion and reflection. Franks, McGlamery, and VanWyngaarden detail a unique field experience and inquiry approach in a methods class that impacts the science self-efficacy of preservice teachers. Finally, Matyo-Cepero and Lilienthal provide an overview of a Web tool that can be useful to college instructors as well as PK-12 educators.

Whether they occur within the family, in preschool or primary classrooms, or preservice methods-class settings, one’s early learning experiences are critical to future direction and growth. Through the articles in this issue, DKG members at every level can realize the vital role that key women educators play in early learning and beyond.

**Judith R. Merz, EdD**  
Editor

# Early-Learning Environments: Resources

---

*Concern about early-learning environments is worldwide. The editor provides a curated list of relevant organizations and initiatives that are key resources for learning about and supporting the development of appropriate early-learning environments.*

---

A variety of organizations and initiatives focus on providing information and research relative to the important area of early-learning environments. The following are offered for members in search of deeper understanding of this critical educational topic. All quotations are taken from cited Web sites for each organization.

## **National Association for the Education of Young Children**

<http://www.naeyc.org/>

The NAEYC is a “professional membership organization that works to promote high-quality early learning for all young children, birth through age 8, by connecting early-childhood practice, policy, and research.” With nearly 70,000 members, the association works to promote and support all who work in the early-childhood community in their efforts to ensure that young children thrive and learn in order to reach their full potential.

A key NAEYC focus is on leadership and professional development for those in the field of early-childhood education. In addition, the NAEYC provides accreditation for early-childhood programs—an assurance for those who enroll their children in NAEYC-accredited programs. NAEYC also offers a journal; magazine; library of books, manuals, and digital media; annual conferences; and advocacy for public policy regarding early-childhood legislation.

## **National Institute for Early Education Research**

<http://nieer.org/>

Cutting edge research is important, and the NIEER, headquartered at Rutgers University in New Brunswick, New Jersey, “conducts and communicates research to support high-quality, effective, early-childhood education for all young children. Such education enhances their physical, cognitive, and social development, and subsequent success in school and later life.” Supported by approximately \$66 million in external funding since it began, the NIEER provides educators, researchers, journalists, and policymakers with both technical assistance and research-based advice.

Perhaps most prominent among the products from NIEER is an annual report on the state of preschool in the United States. This report, published under the title *State Preschool Yearbook*, is based on a state-by-state survey of pre-K programs and can provide DKG members with relevant information and statistics regarding their home states. The NIEER also publishes a journal, research reports, online newsletters, videos, working papers, policy briefs and reports, presentations, and a list of recommended books.

### **National Association of Early Childhood Teacher Educators**

<http://www.naecte.org/>

This association includes members worldwide and focuses on teacher education for those entering the early-childhood field. NAECTE offers a journal, an e-newsletter, annual conferences, and awards and grants. Its corollary Foundation promotes research projects related to early-childhood teacher education as well as scholarships for students in early-childhood preparation programs.

Uniquely, as part of its networking efforts, NAECTE sponsors *ResearchNets* “to facilitate scholarly pursuits on collaborative research projects that relate to topics germane to early-childhood teacher education. *ResearchNets* provide a forum for conducting research studies, an outlet for dissemination of research results, research evidence upon which to base advocacy efforts, and professional development opportunities for NAECTE members.”

### **The Canadian Association for Young Children**

<http://www.cayc.ca/>

The CAYC “is the only national association specifically concerned with the well-being of children, birth through age nine—at home, in preschool settings and at school.” Dedicated to a focus on important issues related to young children’s quality of life, its members include not only educators but also parents and caregivers.

To accomplish its multifaceted efforts to influence policies and programs, provide a forum for Canada’s early-childhood communities, recognize outstanding contributions, and promote opportunities for professional development and collaboration, CAYC pursues three main initiatives. A national conference and provincial and regional events provide workshops, discussion groups, seminars, and other networking opportunities. The *Canadian Children* journal, published twice a year, features articles related to early-childhood education and child rearing.

### **European Early Childhood Education Research Association**

<http://www.eecera.org/>

As a nonprofit organization subsidized entirely by international membership, the EECERA promotes and disseminates research on early-childhood policy and practice. According to its Web site, the EECERA “seeks to sustain and develop the rich tradition of European early-childhood thought, the legacy of Pestalozzi, Owen, Froebel, Steiner, Vygotsky, Piaget, Malaguzzi and other pioneers, whilst looking forward to encourage the exploration of new paradigms, methodologies, concepts and applications in the ever-changing context of early-childhood studies.”

The *EECER Journal* is the only one of four journals identified in the Social Science Citation Index—and the only such journal produced in Europe. An annual conference and a series of Special Interest Groups (SIGS) complement the journal as member benefits. A recent focus is on support for young children impacted by the refugee crisis in Europe.

### **Inter-American Development Bank**

<http://www.iadb.org/en/topics/education/education-initiative-in-latin-america,6448.html>

As part of its focus on improving lives in Latin America and the Caribbean, the IADB supports countries in these regions in efforts to promote effective teaching and learning among all children and youth. Beginning in 1959, the IADB has been the leading source



of development financing, providing loans, grants, and technical assistance as well as conducting extensive research.

A newsletter, series of white papers, and varied blogs create networking and information-sharing among members. IADB also sponsors a series of events on relevant topics and, in collaboration with the ALAS Foundation, offers awards to acknowledge the commitment of individuals and organizations working in the field of early-childhood development. ALAS is a nonprofit organization founded by artists, intellectuals and business leaders dedicated to collective commitment to comprehensive early-childhood development programs for the children in Latin America. The ALAS-IDB awards are presented in four categories: (a) Best publication for girls and boys in their early years and/or their teachers and caregivers; (b) Best teacher; (c) Best Early Childhood Education Program or project; and (d) Best Center of Early Childhood Education.

# Exploration of Early-Childhood Learning Environments

By Jeanine Jechura, Deborah G. Wooldridge, Cynthia Bertelsen, and Gloysis Mayers

---

*L*earning environments in early-childhood settings are multifaceted and must be viewed within children's socio-cultural lenses. Early experiences should integrate children's lives within meaningful contexts, emphasizing integrated learning opportunities within play-based, print-rich environments. Ideally, early-childhood teachers can use the classroom environment as a tool to enhance and reinforce youngsters' social, emotional, and academic learning. Ways of supporting early-learning experiences within the context of indoor, outdoor, and natural environments are highlighted. Breakthroughs in brain research as they relate to early-learning opportunities are also addressed. The authors explore early-childhood environments, reflecting on how educators can create effective spaces that support young learners, ages 3-5.

---

A review of the literature indicates that effective learning environments must take into consideration children's socio-cultural context, utilizing indoor, outdoor, and natural learning spaces. Emerging research also highlights the breakthrough towards understanding early brain development within the context of early learning (Jensen, 2013). According to Barnett (2004) an important factor influencing children's learning experiences in early-childhood classrooms is the quality of such environments. Barnett (2004) suggested that a high-quality classroom is one that is developmentally appropriate, is nurturing, and effectively responds to the changing and emerging needs of young children. A learning environment in an early-childhood classroom is "one part home, one part laboratory for exuberant (and messy) little scientists, one part stage that transforms itself daily, and also one part gallery" (Greenman, 2005, p. 164). In partnership with teachers and peers, learning environments are the third educator (Berris & Miller, 2011; Moore & Sugiyama, 2007). Other researchers (Doppelt & Schumm, 2008; Rushton & Juola-Rushton, 2008) explained early-childhood learning environments as they relate to larger spheres of knowing in which learning occurs as viewed through the lenses of psychology, sociology, and pedagogy. Thus, in addition to focusing on the indoor classroom environment, it is important to take into consideration the outdoor spaces and other natural learning environments supportive of learning that occurs within a meaningful context. Teachers with educational backgrounds in early-childhood or related fields are known to have early-childhood classrooms with higher quality and that encourage collaboration and exploration (Espinoza, 2002; Ogu & Schmidt, 2013; Phillipsen, Burchinal, Howes, & Cryer, 1997).

## Characteristics of Successful Early-Childhood Learning Environments

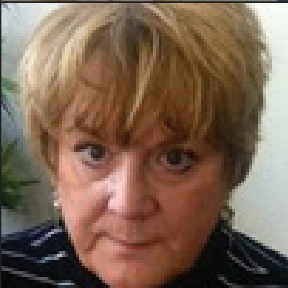
Early-childhood teachers have been acutely aware that young children are more receptive for some kinds of learning during the early years when the brain can absorb and

process large amounts of information (Rushton & Larkin, 2001). A quality early-childhood setting should be structured to include learning centers that facilitate opportunities for hands-on interactive involvement, individual experimentation, and opportunities for self-discovery; designated spaces such as block centers, book/library/writing center, art/studio areas, and science center, just to name a few. Such learning spaces are organized so that children can choose materials and learn within the context of self-selected, meaningful experiences. Blocks, construction materials, puzzles, and dress-up/sociodramatic play materials transform the space into a place children recognize and in which they can gain hands-on relevant experiences within a meaningful context.

According to Cabrera and Cotosi (2010), hands-on-exploration facilitates the development of critical thinking skills that are essential to learning, such as making distinctions, recognizing relationships, organizing systems, and taking multiple perspectives. These learning environments frequently include a play-based and literacy-based focus towards facilitating an integrated, meaningful context for learning. Opportunities for oral and written language are abundant in such contexts, as children are presented with opportunities to express themselves orally and in written forms (Cleveland & Fisher, 2014). For example, when children are exposed to sociodramatic play, they experience



**Dr. Jeanine Jechura** is administrator at the Bowling Green State University Child Development Center in Ohio and is involved in funded grants in the area of pre-k education. [jechurj@bgsu.edu](mailto:jechurj@bgsu.edu)



**Dr. Deborah G. Wooldridge** is a professor and Director of the School of Family and Consumer Sciences at Bowling Green State University. The BGSU Child Development Center is part of the School, and she has provided vision and support for the Creativity Studio for Young Children and the Science Playground, which is a studio for science enrichment. Wooldridge is a member of the Gamma Delta Chapter in Alpha Delta State Organization (OH). [dgwoold@bgsu.edu](mailto:dgwoold@bgsu.edu)



**Dr. Cynthia Bertelsen** is an associate professor in the School of Teaching and Learning at Bowling Green State University. Her work has focused on literacy and special visualization. She serves as the Director of the BGSU Reading Center and works with pre-k teachers at the BGSU Child Development Center and with Head Start teachers. [bertels@bgsu.edu](mailto:bertels@bgsu.edu)



**Dr. Gloysis Mayers** is Assistant Dean of Student Affairs in the College of Education, Zayed University, Dubai, UAE. Mayers served as a faculty member in the College of Health and Human Services at Southeast Missouri State University in a teaching/teacher training capacity, as Director to the Centre for Child Studies, and most recently as Interim Director at the Early Childhood Learning Centre, Zayed University. [gloysis.mayers@zu.ac](mailto:gloysis.mayers@zu.ac)

everyday problems that need to be resolved. In one instance, a group of 4-year-olds could not find items in the grocery store, so they developed a shopping list and store map. They also created advertisements because they wanted to purchase sale items.

### **Brain Research and the Learning Environment**

Recent discoveries in neuroscience have led to exciting revelations and new theories regarding brain development. Among the most significant findings as it relates to early experiences is the notion of brain plasticity (Rushton & Larkin, 2001). Such findings give increased importance for providing quality early experiences to young children. The child's brain receives stimuli from the learning environment via the senses, and stimuli are "transformed into chemical electrical reactions that initiates the beginning of all learning" (Rushton & Juola-Rushton, 2008, p. 89). Using analysis of cortisol levels in the brains of young children, researchers found that a thoughtful, well-organized, calm environment can have long-lasting positive effects on children's ability to tolerate stress (Sajaniemi et al., 2011). Lower levels of daytime cortisol levels revealed that "the quality of the environment may well enable children to practice their skills and find ways to adapt to stress factors" (Sajaniemi et al., 2011, p. 57) for years to come. Educators can also decrease stress by creating a nurturing environment for learning rather than judging the performance of the child. Brain researchers (Hinton, Miyamoto, & Della-Chiesa, 2008) found there to be an advantage for learning by changing the focus from the individual to creating rich learning environments that embrace ongoing collaboration and interactions with peers.

Numerous early-childhood teachers are trained in brain-based strategies that become implemented in quality preschool and other early-childhood learning environments. These strategies require teachers to immerse the young child in meaningful learning experiences, to encourage play in numerous different arenas so that contextual expansion can help the child blossom, and to encourage young children to engage in cooperative social learning. Rushton and Juola-Rushton (2008) explained, "Brain research supports the importance of developing and implementing both a child-centered curriculum and a positive learning environment that is appropriate for specific ages and stages" (p. 88). Integrating brain research and early-childhood learning environments provides the framework for creating a learning environment for young children that stimulates the brain and learning.

Brain research related to educational environments has influenced early-childhood educators to structure a brain-compatible learning environment. Effective early-childhood teachers support brain development, namely the development of neurons, thickening of the myelin sheaf, and stimulation of serotonin and other neurochemical development by creating a rich learning environment. They accomplish this by encouraging children to make appropriate choices and discover treasures within the well-planned learning environment that supports student autonomy. Within this well-orchestrated learning environment, children are exposed to literacy learning, manipulative math activities, differentiation of the curriculum, opportunities to learn through socialization, and outdoor experiences.

### **Print Within the Learning Environment**

The beginning stages of literacy for children start from reading print in the world around them, such as logos for stores such as McDonalds, familiar products such as Pepsi, or letters, numbers, and shapes. Environmental print refers to the wide variety of print found within the child's everyday world (Neumann, Summerfield, & Neumann, 2015). The print itself is found on the signs that permeate schools and child care centers such as "PARKING for STAFF ONLY," labels, menus, and other print material that surrounds

children daily. As Neumann, Acosta, and Neumann (2014) explained, simply observing print in the environment may not have much impact. Environmental print is everywhere and children interact with the written word daily and are exposed to opportunities for literacy learning.

Environmental print is the first print a child learns to “read,” and thus it plays an important role in the lives of young children (Levitt & Red Owl, 2013). An example of the importance of environmental print in a child’s experience is seen in the following story. A young girl was waiting on the driveway of her school as children gathered to come inside

after recess. Every day, she looked at the large sign that spelled “OFFICE,” with an arrow pointing down next to it, and did not know what the word meant. Recognizing two words in the sign—off and ice—the young girl decided that this needed some exploration. Observing no space between the two words, she knew that the space was unnecessary. Because there was an arrow pointing downward, she then decided to go down the stairs to see if she could find the “ice” mentioned on the sign. Wandering around the basement, opening closed doors, and wondering what all the things down there were for, she was discovered by her teacher. When the girl was apprehended, the teacher asked her what she was doing, and the young girl explained that she was looking for the “ice” that the sign said she was supposed to stay off! The teacher was totally confused, and the girl was ushered off to her classroom (J. Jechura, personal communication, October 4, 2015). A

*“Effective early-childhood teachers support brain development, namely the development of neurons, thickening of the myelin sheaf, and stimulation of serotonin and other neurochemical development by creating a rich learning environment.”*

lost opportunity was had by all because the teacher did not explain the sign to the girl and lost an opportunity to engage in a teachable moment.

As Vukelich, Christie, and Enz (2008) explained, environmental print such as the “OFFICE” sign is functional, ubiquitous, and salient. Moreover, it provides young children with their earliest experiences with the symbolic representations found in writing. Some researchers (Levitt & Red Owl, 2013; Vukelich et al., 2008) classified environmental print into three categories: child logos (e.g., Barbie, LEGO), community logos (e.g., STOP signs, event or street signs), and household logos (e.g., Cheerios, Coca-Cola). In contrast to the print that young children are exposed to in storybooks, environmental print is “attention grabbing and personally meaningful to young children” (Neumann et al., 2014, p. 157). It is a readily available resource that is easily accessible to children across numerous cultures and social boundaries. It unites children in exposure to numerous different types of symbolic representations in the learning environment of their world.

Orellana and Hernandez (1999) examined environmental print as it was found in a local, culturally diverse, central Los Angeles environment. Researchers took children for “literacy walks” (p. 613) through the streets near their school. This outdoor learning environment featured hundreds of signs, artistic graffiti, and legible words. The purpose of this ethnographic study (Orellana & Hernandez, 1999) was to observe what print the children noticed and what conversation was stimulated by the walk. Researchers noticed that when they asked children about various signs, their answers communicated boredom

and disinterest. In contrast, young children reacted excitedly to words and signs for their parents' workplaces, markets where they regularly shopped with their families, and names of their own streets. In the final analysis, Orellana and Hernandez recommended that linking the reading of words to the worlds that children know best through their own prior experiences can cause enthusiasm for learning to emerge.

### **Outdoor Learning Environments**

Ernst (2014) explained that nature experiences in the form of child-directed play and exploration are utilized as one form of developmentally appropriate environmental practice in early-childhood education. Natural settings provide interesting surfaces, such as diverse types of ground cover, a variety of loose parts that can be collected and manipulated by young children, and an array of special empty spaces that draw children to exploration and experimentation. From tree stumps to sit on, creeks to examine, pinecones to collect, and acorns to count, the natural settings in a woods provide a plethora of opportunities for engagement and inspiration for anyone.

Samuelsson and Kaga (2008) exposed a growing international consensus that early-childhood educators begin to expose young children to outdoor learning environments. As they explained, it is important for educators to be "laying a sound intellectual, psychological, emotional, social, and physical foundation for development and lifelong learning" (p. 12). Thus, utilizing the outdoor learning environment has great promise in nurturing early learning.

In terms of supporting children's cognitive development, outdoor learning environments provide a far less structured opportunity than indoor spaces. Outdoor learning environments stimulate children's imaginations, creativity, and inventiveness. In terms of supporting the young child's development of gross motor abilities, the outdoor environment allows for more varied movements, such as climbing over rocks, ducking under branches, and jumping over creeks. The physical challenges are stimulating for young children.

Despite all these positive aspects of play in outdoor settings, researchers have generally found these environments to be underutilized by educators. Ernst and Tornabene (2012) studied preservice teachers and their attitudes regarding outdoor settings as appropriate learning environments for young children and found that preservice teachers felt safer in a more structured environment such as a playground than in a natural environment such as a forest or lake.

### **Indoor Natural Learning Environment**

Because teachers feel safer when working with young children in a more structured environment, creating a natural environment in the playground and classroom is an alternative to the outdoor learning environment (Ernst & Tornabene, 2012). In designing a natural learning environment, Zandvilet (2012) explored seven principles of design as follows:

- ✦ nature inspires beauty;
- ✦ color generates interest;
- ✦ furnishings define space;
- ✦ textures add depth;
- ✦ displays enhance environment;
- ✦ elements heighten ambiance; and
- ✦ focal points attract attention.

Bringing the outdoors inside the classroom encourages children to explore and engage in learning. The right choice of elements can provoke a child's thought, stimulate interest, and encourage creative thinking and questioning (Edwards, 2002). Even though there are numerous manners in which teachers as designers of classroom learning environments can bring the outside into the classroom, doing so is still not like being immersed in the sights and sounds of the sensory-laden land of outside—but it does allow for a safe space to learn.

## Conclusion

Emerging research findings should influence early-childhood educators toward further refinement of their own practices. A focus on early-childhood experiences within the context of a quality environment highlights important factors supportive of building a strong foundation for children's future experiences. Rushton and Larkin (2001) called for more studies addressing brain development within the context of the early-childhood learning environments because children spend a great deal of their time in child development settings at a critical period during their development. They further explained that teachers have a central responsibility to create an environment that is relaxed enough to allow focus on the curriculum and challenging enough to excite interest (Rushton & Larkin, 2001). This environment, both outside and in, should reinforce students' experiences with print, especially environmental print, within their daily routine. Furthermore, teachers should serve as facilitators for active student engagement, supporting learning within various contexts where power is distributed across actors and in which "learning space needs are seen to be far more dynamic and situational" than they were previously (Chism, 2002, p. 10).

## References

- Barnett, S. (2004). Better teachers, better preschools: Student achievement linked to teacher qualifications. *Preschool Policy Matters*, 2, 1-11.
- Berris, R., & Miller, E. (2011). How design of the physical environments impacts on early learning: Educators' and parents' perspectives. *Australian Journal of Early Childhood*, 36(4), 102-110.
- Cabrera, D., & Cotosi, L. (2010). The world at our fingertips. *Scientific American Mind*, 21(4), 49-55.
- Chism, N. (2002). A tale of two classrooms. In N. Chism & D. Bickford (Eds.), *The importance of physical space in creating supportive learning environments* (pp. 5-12). San Francisco, CA: Jossey-Bass.
- Cleveland, C., & Fisher, K. (2014). The evaluation of physical learning environments: A critical review of literature. *Learning Environment Research*, 17, 1-28.
- Doppelt, Y., & Schumm, C. D. (2008). Identifying students' perceptions of the important classroom features affecting learning aspects of a design-based learning environment. *Learning Environment Research*, 11, 195-209.
- Edwards, C. P. (2002). Three approaches from Europe: Waldorf, Montessori, and Reggio Emilia. *Early Childhood Research and Practice*, 4(1). Retrieved from <http://ecrp.uiuc.edu/v4n1/edwards.html>
- Ernst, J. (2014). Early childhood educators' preferences and perceptions regarding outdoor settings as learning environments. *International Journal of Early Childhood Environmental Education*, 2(1), 97-125.
- Ernst, J., & Tornabene, L. (2012). Preservice early childhood educators' perceptions of outdoor settings as learning environments. *Environmental Education Research*, 18(5), 643-664.
- Espinoza, L. (2002). High-quality preschool: Why we need it and what it looks like. *Preschool Policy Matters*, 1, 1-10.
- Greenman, J. (2005). *Caring spaces, learning places: Children's environments that work*. Redmond, WA: Exchange Press.
- Hinton, C., Miyamoto, K., & Della-Chiesa, B. (2008). Brain research, learning, and emotions: Implications for educational research, policy, and practice. *European Journal of Education*, 43(1), 87-103.
- Jensen, E. (2013). *Engaging students with poverty in mind: Practical strategies for raising achievement*. Alexandria, VA: Association for Supervision & Curriculum Development.

- Levitt, R., & Red Owl, R. (2013). Effects of early literacy environments on the reading attitudes, behaviours, and values of veteran teachers. *Learning Environment Research*, 16, 387-409.
- Moore, G., & Sugiyama, T. (2007). The Children's Physical Environment Rating Scale (CPERS): Reliability and validity for assessing the physical environment of early childhood educational facilities. *Children, Youth & Environments*, 17(4), 24-53.
- Neumann, M., Acosta, C., & Neumann, D. (2014). Young children's visual attention to environmental print as measured by eye tracker analysis. *Reading Research Quarterly*, 49(20), 157-167.
- Neumann, M. M., Summerfield, K., and Neumann, D. L. (2015). Visual attention to print-salient and picture-salient environmental print in young children. *Reading and Writing*, 28(4), 423-437.
- Ogu, U., & Schmidt, S. R. (2013). The natural playscape project: A real-world study with kindergartners. *Young Children*, 68(4), 32-39.
- Orellana, M. F., & Hernandez, A. (1999). Talking the walk: Children reading urban environmental print. *Reading Teacher*, 52(6), 612-619.
- Phillipsen, L. C., Burchinal, M. R., Howes, C., & Cryer, D. (1997). The prediction of process quality from structural features of child care. *Early Childhood Research Quarterly*, 12, 281-303.
- Rushton, S., & Juola-Rushton, A. (2008). Classroom learning environment, brain research, and the No Child Left Behind Initiative: Six years later. *Early Childhood Education Journal*, 36(1), 87-92.
- Rushton, S., & Larkin, E. (2001). Shaping the learning environment: Connecting developmentally appropriate practices to brain research. *Early Childhood Education Journal*, 29(1), 25-33.
- Sajaniemi, N., Suhonen, E., Kontu, E., Rantanen, P., Lindholm, H., Hyttinen, S., & Hirvonen, A. (2011). Children's cortisol patterns and the quality of the early learning environment. *European Early Childhood Education Research Journal*, 19(1), 45-62.
- Samuelsson, I., & Kaga, Y. (2008). *The contribution of early childhood education to a sustainable society*. Paris, FR: UNESCO.
- Vukelich, C., Christie, J., & Enz, B. (2008). *Helping young children learn language and literacy: Birth through kindergarten*. Boston, MA: Pearson/Allyn and Bacon.
- Zandvilet, D. B. (2012). Development and validation of the Place-Based Learning and Constructivist Environment Survey (PLACES). *Learning Environment Research*, 15(1), 125-140.



# Teachers' Perception of Primary Literacy Preparation: Has it Improved?

By Amanda Eller and E. Michael Poe

---

*Teacher preparation in primary literacy is improving according to the perceptions of teachers who participated in this mixed-methods study. In this study, the authors explored a perceived change over time in the strength of teacher preparation in primary literacy by surveying new, practiced, and veteran teachers. Participants reflected upon their preparation experiences in the four core elements of literacy (phonemic awareness, phonics, fluency, comprehension) and in progress-based assessment. Through analysis of the survey, the authors determined statistically significant differences among the three groups of teachers in their perceived levels of preparedness. They also examined participants' associated reflective statements.*

---

## Introduction

All new teachers face the daunting task of being fully qualified and highly effective from their first day in the classroom. Because literacy is the foundation of all learning, this is especially true for those charged with teaching literacy in the primary grades (K-3). Having a strong or weak teacher at the primary level can affect up to an entire grade level of achievement in a child's elementary education (Borman & Kimball, 2005). Students who are not proficient readers by the end of Grade 3 are 4 to 13 times more likely to drop out of high school, depending upon socioeconomic status (Gewertz, 2011), and new primary teachers understand this. They know they need to deliver high-quality learning experiences for their students. However, a great many new teachers with elementary certification enter the profession grossly underprepared to be highly effective primary literacy teachers (Bornfreund, 2012; Fitzharris, Jones, & Crawford, 2008; Greenberg, McKee, & Walsh, 2013; National Council for Accreditation of Teacher Education [NCATE], 2013).

The twenty-first century has been rife with research on how children learn literacy skills and on best practices in teaching early foundational literacy. With the emphasis on literacy and early learning so prevalent over the past decade, are new teachers now entering the profession feeling better prepared to meet the challenge of teaching young students how to read? This research explored that question by surveying primary teachers in a western state, then analyzing the reflective responses of new teachers with 0-3 years of experience, practiced teachers with 4-10 years of experience, and veteran teachers with 11 or more years of experience.

## Review of Literature

Literacy is the foundation of all learning. Research has demonstrated teacher quality is the leading factor in student success and is of more consequence than levels of

funding, class sizes, and technology access (Fitzharris et al., 2008; Harris & Sass, 2008; Konstantopoulos & Sun, 2012; MET, 2010; NCATE, 2013; Smith, 2009). Students who struggle learning to read need a teacher who understands literacy development, who knows how to intervene early, and who is well-versed in meaningful intervention at both the phonological and comprehension level (Brackley, 2015). Smith (2009) stated, “Teachers cannot make sound instructional decisions without knowing the basic principles involved in how children learn to read” (p. 249).

The vast majority of students require initial instruction focusing on the core elements of literacy, which are phonemic awareness, phonics (including spelling), fluency, and comprehension (including vocabulary and text connection; Macaruso & Shankweiler, 2010; Moats, 1999; Walsh, Glaser, & Wilcox, 2006). Phonemic awareness and phonics beget better decoding and spelling skills, which impact fluency, which in turn is closely related to comprehension and vocabulary development. Teachers must be able to evaluate and determine individual learning needs in all phases of literacy development and provide targeted instruction (Brackley, 2015).

University teacher-preparation programs have a direct influence on the quality of literacy instruction new teachers are able to provide to their students for at least the first 3 years of a teacher’s career (Harris & Sass, 2008; Johnson, Berg, & Donaldson, 2005). Therefore, to be highly effective from Day 1, elementary teachers need to have gained from their preparation programs a great knowledge of content and a solid understanding of pedagogical best practices in teaching literacy. These can best be obtained through a combination of coursework and fieldwork as part of a comprehensive, intensive, university teacher-preparation program (Bornfreund, 2012; Council for the Accreditation of Educator Preparation [CAEP], 2013; Greenberg et al., 2013; NCATE, 2013; Shuls & Ritter, 2013). Highly effective elementary teacher-preparation programs require extra coursework in teaching reading methods, integrating theory into practice, and learning pedagogical techniques, as well as in giving assessments and determining how to use the assessment data to guide future instruction and plan literacy interventions for struggling students (CAEP, 2013; Cochran-Smith & Power, 2010; Leland, 2013; Walsh et al., 2006).

In-depth field experience should be strongly integrated into university teacher training. Field experience is imperative in assisting preservice teachers in learning to teach literacy by allowing them to observe current teachers using best practices in teaching literacy and

**Dr. Amanda Eller** is a clinical assistant professor in the Teaching and Educational Studies Department at Idaho State University. She earned her PhD and EdS degrees at Northwest Nazarene University, MEd from Lesley University, and a BS in elementary education from Idaho State University. Eller taught elementary school for 16 years prior to transitioning to higher education. She has been a member of Theta Chapter in Alpha Nu State (ID) since 2000. Eller is a recipient of Theta Chapter scholarships for each graduate degree; an Alpha Nu State scholarship for her master’s degree; and the DKG Society International scholarship for her doctoral work. elleama2@isu.edu



**Dr. E. Michael Poe** is an associate professor of education at Northwest Nazarene University, where he served as chair of Eller’s dissertation committee. He earned his doctorate at the University of Idaho. He has been at NNU since 1998 and served in the public school system for many years before that. Poe is the director of the Education Specialist Graduate Program at NNU. empoe@nnu.edu



to practice applying the pedagogical practices they have learned in coursework (Leland, 2013). Universities must also have student teachers complete fieldwork only with very experienced teachers who are highly trained in scientific, research-based reading pedagogy (Morris, 2011; Pimentel, 2007).

Past research has shown new teachers often enter their first year feeling unprepared and ineffective, especially in teaching emergent literacy (Copeland, Keefe, Calhoun, Tanner, & Park, 2011; Leland, 2013; NCATE, 2013). However, teachers entering the profession are expected to be highly qualified, successful teachers from Day 1 in the classroom. Those beginning their careers as primary teachers are required to be competent, capable, strong literacy teachers, regardless of where or what they teach, their background, the backgrounds of their students, the credentialing system through which they went, or any other variable (Bornfreund, 2012; International Reading Association [IRA], 2003; Walsh et al., 2006). This study evolved from a gap between program improvement recommendations and implementation results as perceived by teachers.

### Purpose of the Research

This research sought to determine if teachers believe teacher education programs have improved over time in primary literacy preparation by posing the question: *Are new teachers entering the profession feeling better prepared to teach literacy at the primary level now than in the past?* The research was conducted to explore whether new teachers believed their preparatory programs provided them with a sufficiently strong foundation of the knowledge, understanding, and skillsets necessary to feel prepared, qualified, and successful in their first years of teaching. The study compared experiences of new teachers with the remembered first-year experiences of practiced and veteran teachers to seek to determine if the quality of preparation for primary literacy instruction has improved. The study was approved by the researcher's university Human Research Review Committee (HRRC).

### Theoretical Framework

Utilizing prior research, a theoretical framework was developed for the purpose of the study. The theoretical framework (Figure) was based on a three-prong indicator of effective, beginning, primary literacy teachers: professional preparation (Harris & Sass, 2008; Spear-Swerling, Brucker, & Alfano, 2005), professional teaching experience (Harris & Sass, 2008; Johnson et al., 2005; O'Donnell, 2010), and self-assessment of efficacy (Hoffman et al., 2005; Johnson et al., 2005; Morris, 2011; Walsh et al., 2006). This framework allowed for comparative analyses of teachers' preparation and first-year experiences.

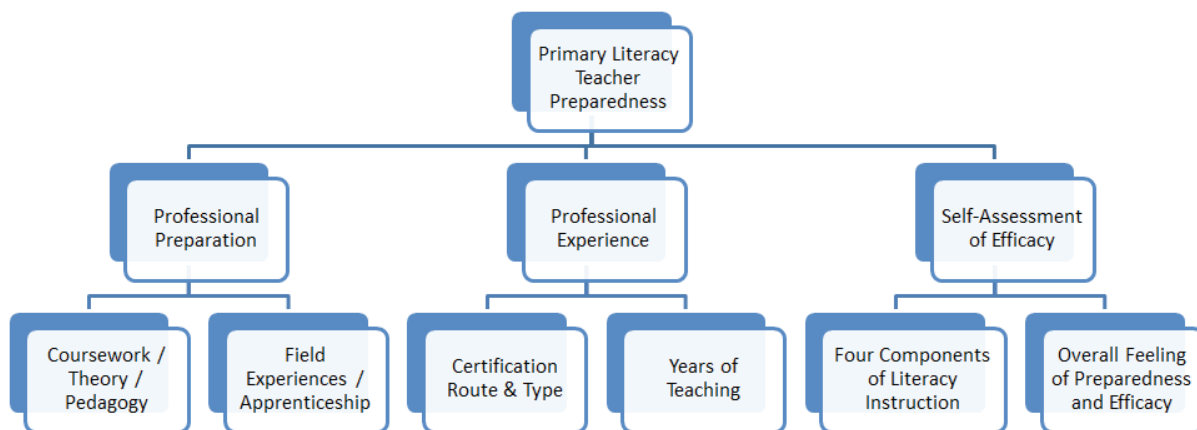


Figure. Theoretical framework.

## Methodology

**Research design.** This research focused on primary teachers throughout three districts in a western state. One was an urban district, one was a county-wide district that served both urban and rural populations, and one was a county-wide district that consisted only of rural schools. The districts were purposely chosen for their diversity in service populations and because of their locations, which were in regions not primarily served by just one university. This allowed for an analysis of improvement in preparation programs in general.

**Sample and recruitment.** The survey was distributed electronically to 232 teachers of kindergarten through Grade 3 in the three targeted districts. The superintendents of the districts provided prior written consent allowing the participation of their teachers. The survey was completely anonymous and voluntary. The study was delimited to teachers who were teaching kindergarten through Grade 3 general education in a public school in one of three target districts. The survey delimited participant responses to their experiences and views during the first years of teaching because research has shown the university effect levels off after the first 3 years (Harris & Sass, 2008; Johnson et al., 2005). All K-3 teachers in the three districts were encouraged to participate and were asked to complete the survey reflecting their thoughts and experiences from their first years of teaching.

**Instrument.** A mixed-methods survey was generated based on the theoretical framework. The quantitative items were Likert-scale statements following developmental guidelines from Likert (1932), and qualitative items were open-ended questions designed to support and expand the responses to the Likert-scale statements. The survey consisted of seven sections: demographics and general teacher-preparation-program information; preparation in phonemic awareness; preparation in phonics; preparation in fluency; preparation in comprehension; preparation in giving assessments and utilizing assessment data; and a conclusionary overview. The focus of this analysis is on the first and last sections.

The survey was validated using the Content Validity Index (Lynn, 1986; Polit & Beck, 2006) and deemed valid by a panel of experts. The survey was then distributed and collected using Qualtrics (2013), an online survey software that allows for both Likert-scale and open-ended questions and maintains complete anonymity of participants.

**Data collection.** A call to participate in the survey was sent three times electronically and one time via mailed paper flyer. The data collection window was in the fall of the school year, purposely timed to fall after first-quarter report cards and parent-teacher conferences but before the holidays. The response sample consisted of 74 primary literacy teachers, a 32% response rate. The response rate was not low enough to invalidate results (Tanner, 2012), especially as primary teachers could be considered busy nonrespondents (Anseel, Lievens, Schollaert, & Choragwicka, 2010; Johnson et al., 2005; Sivo, Saunders, Chang, & Jiang, 2006). The response rate for veteran teachers (11+ years of experience) was the greatest, at 41 out of a possible 107 participants, or 38% of the categorical survey population. There were 15 participants in the practiced teacher category (4-10 years of experience) out of 72 possible, which calculated to a 21% categorical response rate. The

“  
New teachers  
are entering the profession  
feeling better prepared  
to teach literacy  
at the primary level  
than did practiced  
and veteran teachers.”

new-teacher category (0-3 years of experience) had 18 respondents out of 53 possible, or a 34% categorical response rate.

**Data analysis.** Cronbach's alpha was the statistical analysis used to determine the internal consistency of responses and, therefore, overall reliability of the Likert-scale results (Connelly, 2011; Gliem & Gliem, 2003; Lund Research Ltd., 2013; Tanner, 2012). The internal consistency of the full survey was well above acceptable levels with a reliability coefficient of .96 (Gliem & Gliem, 2003; Lund Research Ltd., 2013).

The participating teachers were split into three groups to help determine change over time: new teachers with 0-3 years of experience, practiced teachers with 4-10 years of experience, and veteran teachers with 11 or more years of experience. Responses from the three independent groups of new, practiced, and veteran teachers were analyzed for statistically significant differences utilizing the Kruskal-Wallis test (Lund Research Ltd., 2013). If the Kruskal-Wallis test resulted in a statistically significant score on a specific Likert-scale statement, which meant a statistical difference in opinion was indicated for at least one of the three groups, the researcher performed a post-hoc test, a pairwise comparison using Dunn's (1964) procedure with a Bonferroni correction (Lund Research Ltd., 2013). This allowed the researcher to determine which group or groups differed statistically significantly from the others in their responses to the Likert-scale statements.

For the qualitative analysis, the researcher utilized the open-coding strategy to generate conceptual categories, followed by axial coding to relate the commonalities of responses and deduce overarching themes (Marshall & Rossman, 2011). The qualitative themes supplemented and enriched the quantitative data.

## Results

The results of the first and last segments from the survey, which provide an overall viewpoint of teachers regarding the research question, are the focus here. These two sections provided numerous points of statistically significant differences among new, practiced, and veteran teachers, demonstrating a positive change over time in the strength of primary literacy preparation. Although these sections did not specifically address details of the four components of literacy development, they addressed the level of preparation received by preservice teachers regarding the components in general, as well as the preparatory factors that provided support and successful implementation of theory and pedagogy learned regarding the components. These quantitative data were supported by qualitative themes.

**Section 1: Teacher Preparation Program.** The survey results from the first section yielded several statistically significant differences among the three groups. The results of Section 1 indicated a general improvement over time in the overall perceived strength of teacher-preparation programs attended by the sample population. Although Section 1 did not include open-ended questions, related statements given throughout the middle of the survey supported the statistical findings of the section.

One significant difference stemmed from the statement, "My teacher preparation consisted of coursework that offered in-depth knowledge of best practices in teaching reading." This type of coursework is vital for preservice teachers, for without it they are much more likely to struggle when trying to teach primary students how to read (Bornfreund, 2012; Moats, 1999; Walsh et al., 2006). Overall, 76% of new teachers *agreed* or *strongly agreed* with this statement, compared to 50% of practiced teachers and only 32% of veteran teachers. Throughout the survey, this discrepancy in preparation levels was reported for phonemic awareness, phonics, fluency, and planning from assessments. Only the category of comprehension showed results that differed from this trend, as it was the

one component in which all groups of teachers believed—and statistics confirmed—they were equally well-prepared.

Table 1  
*Independent Samples Kruskal-Wallis Test of Survey Section 1: Teacher Preparation Program*

Item	$\chi^2$	$p$	Differing Pairs*	Pairwise $p$	<i>adj. p</i>
1	4.106	0.128			
2	8.943	0.011	N/V	0.003	0.009
3	4.180	0.124			
4	7.727	0.021	P/V	0.031	0.092
			N/V	0.023	0.069
5	2.107	0.349			
6	5.710	0.058			
7	3.198	0.202			
8	8.172	0.017	N/V	0.027	0.027
			N/P	0.043	0.043
9	0.027	0.987			
10	3.250	0.197			
11	9.158	0.010	N/V	0.003	0.008
12	7.769	0.021	P/V	0.011	0.033

*Note.* The Kruskal-Wallis score was deemed statistically significantly different among the three experience groups with  $df$  of  $\chi^2(2)$  when  $p < 0.05$ . Post-hoc testing determined paired differences, and the  $p$  of the pair. The Bonferroni correction for multiple comparisons was calculated, resulting in adjusted  $p$  levels that maintained statistical significance when the *adj. p*  $< 0.05$ .

\* N = New teachers, P = Practiced Teachers, V = Veteran Teachers.

These results were supported by reflective responses throughout the survey. Information was inconsistent among veteran teachers, dependent upon how many decades it had been since their preparatory experiences. One veteran teacher who matriculated in the early 1990s wrote, “I did not receive instruction on how to teach reading,” yet another reflected on phonics being a strong part of her preparation in the 1970s. Comments from practiced teachers overwhelmingly described inadequate preparation. One practiced teacher who had mentioned going through her preparation program in the time of the whole language movement stated,

I loved my professors, but preparing me to be a teacher was pathetic. I didn’t realize how pathetic until I actually began to teach and realized how much I didn’t know.

Everything about phonemes and phonics was non-existent in my teacher ed classes. Another practiced teacher said that the components of literacy had been covered in theory, but she was never taught how to apply the knowledge to teaching. Conversely, a new teacher shared,

It is hard to be detailed about my experiences because there were so many! I was able to work in a half-day kindergarten classroom and a third grade classroom. I

was able to learn about phonemic awareness and phonics and how to present it to students in a wide variety of ways... I gave assessments and planned interventions. The dominant theme among the new teachers was they felt they had received solid preparation in both theory and practice, which had included copious hours of fieldwork.

Survey respondents also reported great growth over time regarding the statement, "Professors in my program often taught using the same pedagogical techniques they were instructing me to use as a teacher (i.e. collaboration, hands-on, reflection)." As compared to only 46% of veteran teachers, 77% of new teachers and 86% of practiced teachers *agreed*. Several new teachers recounted memories of role-playing in their courses.

Student teaching is the critical mentorship period of a preparation program in which preservice teachers have the opportunity to put into full-time practice the full scope of training and pedagogical techniques they learned throughout their programs (Russell & Russell, 2011; Ye, 2009). Of those surveyed, practiced teachers experienced a significantly greater delineation of guidelines during student teaching than either new or veteran teachers, with 93% of practiced teachers stating their experience had been well-defined, as compared to 60% of veteran teachers and 76% of new teachers. The decline of the student-teaching experience between practiced and new teachers may be rationalized by new teachers' demographic information and supporting statements given elsewhere in the survey, which explained new teachers were more often engaged in emergency hiring situations due to teacher shortages during what was supposed to be their student-teaching experience. In addition, some new teachers had pursued alternative routes of certification that did not include a student-teaching component. Adjusting for those circumstances, 87% of new teachers who had experienced traditional student teaching *agreed* that their experiences had been clearly defined.

Ye (2009) suggested the mentoring experience is one of the primary factors that determine a beginning teacher's success in the classroom. One new teacher wrote, "I learned the most through hands-on experience and through my student teaching. My mentor... taught me how to do it and the why behind each skill." Clearly, when universities provide specific guidelines for expectations of the university supervisors, school administrators, mentor teachers, and student teachers, especially in regards to teaching expectations, collaboration, and evaluation, the student teaching experience is more effective and better prepares the student teacher for the realities of teaching (Fuhrken, 2006; Heller, Wood, & Shawgo, 2007; Russell & Russell, 2011; Smith, 2009). A veteran teacher shared, "I had a student teacher last year and I was amazed at how knowledgeable she was with standards, assessments, gathering data, and using team meetings effectively. She was way better prepared than I was 30 years ago!"

**Section 7: Conclusion.** The conclusion section of the survey provided further holistic information regarding preparation experiences in primary literacy. Statistically significant differences between new and veteran teachers occurred in four of six areas. Only 27% of veteran teachers responded affirmatively to the statement, "I believe my university provided me with strong foundational knowledge of the science of reading," as compared to 36% of practiced teachers and 75% of new teachers. These data support a conclusion of progress being made in preparation programs that provide preservice teachers with requisite knowledge of developing science-based reading research.

Table 2  
*Independent Samples Kruskal-Wallis Test of Survey Section 7: Conclusion*

Item	$\chi^2$	$p$	Differing Pairs*	Pairwise $p$	<i>adj. p</i>
60	5.886	0.053			
61	7.410	0.025	N/V	0.007	0.020
62	7.755	0.021	N/V	0.006	0.017
63	11.714	0.003	N/V	0.001	0.002
64	0.369	0.832			

Note. The Kruskal-Wallis score was deemed statistically significantly different among the three experience groups with  $df$  of  $\chi^2(2)$  when  $p < 0.05$ . Post-hoc testing determined paired differences, and the  $p$  of the pair. The Bonferroni correction for multiple comparisons was calculated, resulting in adjusted  $p$  levels that maintained statistical significance when the *adj. p*  $< 0.05$ .

\* N = New teachers, P = Practiced Teachers, V = Veteran Teachers.

Another Likert item that yielded a statistically significant difference among groups was the statement, “My first year of teaching, I felt very prepared to effectively teach all the core elements of literacy.” New teachers believed they were better prepared than the other groups, with 58% *agreeing* to the statement, yet none *strongly agreeing*. Practiced teachers included only 27% in *agreement*, and veteran teachers included 13% who *agreed* or *strongly agreed*. The results of this item contradicted the expectations placed upon new teachers to be highly qualified and fully effective at teaching primary literacy at the outset of their careers (Bornfreund, 2011, 2012; Annie E. Casey Foundation, 2010; IRA, 2003a; O’Donnell, 2010).

The qualitative data presented a core theme across all groups—that their preparation was severely lacking in the core elements of literacy. A veteran teacher wrote, “I wish my reading methods class would have prepared me more... my methods class was just fluff,” and a practiced teacher stated, “I wasn’t prepared. Period.” Although a significant number of new teachers reported being better prepared than in the past, many still were not. One new teacher said, “I didn’t know how unprepared I was until I started my first year of teaching. I wish I had had more hands-on experience,” yet another new teacher reported having spent numerous hours in the field for multiple courses, which aided her greatly in feeling well-prepared. The discrepancy highlighted the need for continued improvement across multiple programs.

Responses to two Likert statements in the conclusion section did not yield a statistically significant difference among the three groups. These items were more directed toward the philosophies of education the participants held as they began their careers, which may or may not have been influenced by their preparation programs. The first was, “I believe a solid foundation in literacy is essential for student academic success.” One-hundred percent of both new and practiced teachers began their careers either *strongly agreeing* or *agreeing* with this belief, up from 84% of veteran teachers. The final item in the survey sought to determine the level at which participants *agreed* with the statement, “Regardless of the strength of my preparation program, I began my teaching career optimistically, knowing I would be a good reading teacher.” Those who *strongly agreed* or *agreed* included 100% of new teachers, 73% of practiced teachers, and 86% of veteran teachers. The teachers in this survey represented themselves in a way that supported previous research that noted most teachers will begin their careers optimistically, despite their level of training (Brilhart, 2010; Maloch et al., 2003; Ye, 2009).



## Discussion

This research sought to determine if new teachers perceived themselves as better prepared by their university preparation programs to meet the challenge of teaching primary literacy than did their predecessors. The answer to this question is complex, dependent upon multiple variables, and unlikely to be fully answered within the scope of one study, but the data gathered in this research survey suggested the answer is affirmative. New teachers are entering the profession feeling better prepared to teach literacy at the primary level than did practiced and veteran teachers.

*“ All groups of the sample population demonstrated a belief that preparation programs have gotten better at offering pedagogically strong coursework and requiring substantially more relevant fieldwork. ”*

New teachers are said to possess an intrinsic sense of mission and usually enter their classrooms prepared to work diligently to meet the needs of all students (Ballard & Bates, 2008; Freedman & Appleman, 2009; Gentry, Steenbergen-Hu, & Choi, 2011; Johnson et al., 2005). This may be because of

or in spite of the level of preparation they received. The qualitative data from this research provided three overarching themes that were prevalent across all three experience groups:

1. The more fieldwork preservice teachers participated in as part of their preparation, the more prepared they believed themselves to be;
2. Preservice teachers learned more in student teaching than from any of their theory or methodology classes; and
3. Quality mentors were the deciding factor helping survey participants get to the point at which they believed they could be successful, high-quality, primary literacy teachers.

The weaknesses of teacher-preparation programs have been mitigated over time, but survey participants still called for more training and fieldwork in literacy. All groups of the sample population demonstrated a belief that preparation programs have gotten better at offering pedagogically strong coursework and requiring substantially more relevant fieldwork. New teachers reported learning significantly more from their preparation programs than did practiced and veteran teachers and saw themselves as more prepared to enter the classroom as effective primary literacy teachers.

This study demonstrated that programs in general seem to be on a good trajectory of improvement. However, more can be done to prepare new teachers to provide young students with the greatest opportunities for literacy development in the primary grades. This researcher calls on personnel in university teacher-preparation programs to focus more strongly on instilling in preservice candidates a higher level of scientific understanding of literacy development and research-proven methodologies and to implement more fieldwork requirements in courses to allow preservice teachers to practice and implement pedagogical techniques with high-quality mentors.

### Delimitations and Limitations

The results of this study were delimited and limited by several factors. The sample population was drawn from one state, and although the districts chosen included teachers who had matriculated from a variety of universities, relatively few university preparation programs were represented in the small sample. The survey was subject to coverage error (Sivo et al., 2006), as the researcher had to rely upon the superintendents of the districts to follow through with their agreement to distribute the survey to all K-3 teachers. Although three districts were included in the call to participate, whether the response sample equally represents each of the districts is an unknown. The low response rate is also a limiting factor. It is impossible to know if the nonrespondents in each group would have reported similarly to respondents. Due to the anonymity of respondents, the researcher had to assume that all who took the survey were honest participants who were actually K-3 teachers, as well as presume that all of the responses were accurate reflections that truly represented the participants' thoughts, perceptions, and experiences at the beginnings of their careers. In addition, the researcher presumed that new teachers would have been in the classroom long enough by the end of first quarter to know if they had been well-prepared in primary literacy.

### Implications

This research demonstrates the continued need for greater development of background knowledge in the core elements of literacy, more pedagogical instruction on how to teach students how to read, and more fieldwork opportunities to practice implementing knowledge and skills while working with an effective teacher mentor. In addition, university personnel should provide specific guidelines for preservice fieldwork, including student-teaching-experience requirements that delineate the expectations of all parties involved.

Based on the responses from this sample population, great advancements have been made in teacher education on the part of universities in general to better prepare preservice teachers to be skilled, competent, and effective primary-literacy teachers. New teachers are feeling better prepared in general than their predecessors in the core elements of literacy, in general understanding of literacy development, and in pedagogy. Further research should be conducted on a broader population to determine if the results of this study accurately describe improvements happening in preparation programs across the country.

### References

- Annie E. Casey Foundation. (2010). Early warning: Why reading by the end of third grade matters. *Education Digest*, 76(1), 27-31.
- Anseel, F., Lievens, F., Schollaert, E., & Choragwicka, B. (2010). Response rates in organizational science, 1995-2008: A meta-analytic review and guidelines for survey researchers. *Journal of Business & Psychology*, 25(3), 335-349. doi:10.1007/s10869-010-9157-6
- Ballard, K., & Bates, A. (2008). Making a connection between student achievement, teacher accountability, and quality classroom instruction. *The Qualitative Report*, 11(4), 560-580. Retrieved from <http://www.nova.edu/ssss/QR/QR13-4/ballard.pdf>
- Bornfreund, L. A. (2011). *Getting in sync: Revamping licensing and preparation for teachers in pre-K, kindergarten, and the early grades*. Washington, DC: New America Foundation. Retrieved from [http://newamerica.net/publications/policy/getting\\_in\\_sync](http://newamerica.net/publications/policy/getting_in_sync)
- Bornfreund, L. A. (2012). Preparing teachers for the early grades. *Educational Leadership*, 69(8), 36-40.
- Brackley, L. (2015). A response to Elliot. *Psychology of Education Review*, 39(1), 28-31.
- Brillhart, D. (2010). Teacher conceptualization of teaching: Integrating the personal and the professional. *Journal of Ethnographic & Qualitative Research*, 4(4), 168-179.

- Cochran-Smith, M., & Power, C. (2010). New directions for teacher preparation. *Educational Leadership*, 67(8), 6-13.
- Connelly, L. M. (2011). Cronbach's alpha. *MEDSURG Nursing*, 20(1), 44-45.
- Copeland, S. R., Keefe, E. B., Calhoun, A. J., Tanner, W., & Park, S. (2011). Preparing teachers to provide literacy instruction to all students: Faculty experiences and perceptions. *Research & Practice for Persons with Severe Disabilities*, 36(3/4), 126-141.
- Council for the Accreditation of Educator Preparation [CAEP]. (2013). *Draft standards* [Data file]. Retrieved from <http://caepnet.org/commission/standards/>
- Dunn, O. J. (1964). Multiple comparisons using rank sums. *Technometrics*, 6(3), 241-252. doi:10.1080/00401706.1964.10490181
- Fitzharris, L., Jones, M., & Crawford, A. (2008). Teacher knowledge matters in supporting young readers. *Reading Teacher*, 61(5), 384-394.
- Freedman, S., & Appleman, D. (2009). In it for the long haul. *Journal of Teacher Education*, 60(3), 323-337. doi:10.1177/0022487109336181
- Fuhrken, C. D. (2006). *Preservice teachers' perceptions of preparation and practices for teaching reading/language arts: Three case studies* (Unpublished doctoral dissertation). University of Texas at Austin, Austin, Texas. Retrieved from <http://repositories.lib.utexas.edu/bitstream/handle/2152/2865/fuhrkenc88198.pdf>
- Gentry, M., Steenbergen-Hu, S., & Choi, B. (2011). Student-identified exemplary teachers: Insights from talented teachers. *Gifted Child Quarterly*, 55(2), 111-125. doi:10.1177/0016986210397830
- Gewertz, C. (2011). P-2 years targeted to achieve grade 3 reading proficiency. *Education Week*, 30(36), 1-23.
- Gliem, J. A., & Gliem, R. R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *Proceedings of 2003 Midwest Research to Practice Conference in Adult, Continuing, and Community Education*. Columbus, OH: Ohio State University. Retrieved from: <http://hdl.handle.net/1805/344>
- Greenberg, J., McKee, A., & Walsh, K. (2013). Teacher prep review: A review of the nation's teacher preparation programs. *National Council on Teacher Quality*. Retrieved from [http://www.nctq.org/dmsStage/Teacher\\_Prep\\_Review\\_2013\\_Report](http://www.nctq.org/dmsStage/Teacher_Prep_Review_2013_Report)
- Harris, D. N., & Sass, T. R. (2008). Teacher training, teacher quality, and student achievement. *Journal of Public Economics*, 95(7-8), 798-812. Retrieved from [http://heartland.org/sites/default/files/1001059\\_teacher\\_training.pdf](http://heartland.org/sites/default/files/1001059_teacher_training.pdf)
- Heller, M. F., Wood, N. J., & Shawgo, M. (2007). Teaching and learning in language arts: From campus to classroom and back again. *Journal of Educational Research*, 100(4), 226-234.
- International Reading Association. (2003). *Prepared to make a difference: An executive summary of the National Commission on Excellence in Elementary Teacher Preparation for Reading Instruction*. Newark, DE: Author. Retrieved from [www.reading.org/Libraries/reports-and-standards/teaching\\_reading\\_well.pdf](http://www.reading.org/Libraries/reports-and-standards/teaching_reading_well.pdf)
- Johnson, S., Berg, J., & Donaldson, M. (2005). *Who stays in teaching and why: A review of the literature on teacher retention (A project on the next generation of teachers)*. Cambridge, MA: Harvard Graduate School of Education. Retrieved from [http://assets.aarp.org/www.aarp.org/\\_articles/NRTA/Harvard\\_report.pdf](http://assets.aarp.org/www.aarp.org/_articles/NRTA/Harvard_report.pdf)
- Konstantopoulos, S., & Sun, M. (2012). Is the persistence of teacher effects in early grades larger for lower-performing students? *American Journal of Education*, 118(3), 309-339.
- Leland, K. M. (2013). The impact of a teacher preparation literacy course on pre-service teachers' perceptions of teaching young children how to read. *SRATE Journal*, 22(2), 65-70.
- Likert, R. (1932). The method of constructing an attitude scale. In M. Fishbein (Ed.), *Readings in attitude theory and measurement* (pp. 90-95). New York City, NY: Wiley.
- Lund Research Ltd. (2013). *Laerd Statistics Premium*. Retrieved from <https://statistics.laerd.com/>
- Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, 35(6), 382-386. Retrieved from [http://journals.lww.com/nursingresearchonline/Citation/1986/11000/Determination\\_and\\_Quantification\\_Of\\_Content.17.aspx](http://journals.lww.com/nursingresearchonline/Citation/1986/11000/Determination_and_Quantification_Of_Content.17.aspx)
- Maloch, B., Flint, A., Eldridge, D., Harmon, J., Loven, R., Fine, J. C., ... Martinez, M. (2003). Understandings, beliefs, and reported decision making of first-year teachers from different reading teacher preparation programs. *Elementary School Journal*, 103(5), 431-457.
- MET. (2010). *Measures of Effective Teaching project*. Retrieved from <http://www.metproject.org/index.php>
- Morris, D. (2011). Practicum training for teachers of struggling readers. *Phi Delta Kappan*, 92(8), 54-57.

- National Council for Accreditation of Teacher Education [NCATE]. (2013). What makes a teacher effective? *The Case for High Quality Teacher Preparation*. Retrieved from <http://www.ncate.org/LinkClick.aspx?fileticket=JFRrmWqa1jU%3d&tabid=361>
- O'Donnell, P. S. (2010). *Is "highly qualified" really highly qualified? An examination of teacher quality measures and their impact on student achievement* (Unpublished doctoral dissertation). Georgetown University, Washington, DC. Retrieved from <http://cdm16261.contentdm.oclc.org/cdm/ref/collection/p15036coll3/id/592>
- Pimentel, S. (2007). Teaching reading well: A synthesis of the International Reading Association's research on teacher preparation for reading instruction. *International Reading Association*. Retrieved from [http://www.reading.org/Libraries/reports-and-standards/teaching\\_reading\\_well.pdf](http://www.reading.org/Libraries/reports-and-standards/teaching_reading_well.pdf)
- Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing and Health*, 29(5), 489-497. doi:10.1002/nur.20147
- Qualtrics. (2013). Qualtrics: Sophisticated research made simple [Online Software]. Retrieved from <http://www.qualtrics.com/>
- Russell, M. L., & Russell, J. A. (2011). Mentoring relationships: Cooperating teachers' perspectives on mentoring student interns. *Professional Educator*, 35(1), 16-35.
- Shuls, J. V., & Ritter, G. W. (2013). Teacher preparation: Not an either-or. *Phi Delta Kappan*, 94(7), 28-32.
- Sivo, S. A., Saunders, C., Chang, Q., & Jiang, J. J. (2006). How low should you go? Low response rates and the validity of inference in IS questionnaire research. *Journal of the Association for Information Systems*, 7(6), 351-414. Retrieved from <http://pegasus.cc.ucf.edu/~ssivo/Distribution/PublishedPapers/2006%20JAIS%20-%20Treating%20Nonresponse%20in%20IS%20Survey%20Research.pdf>
- Smith, M. (2009). Learning how to teach reading: A tale of two beginners and the factors that contributed to their vastly different teaching perspectives. *Reading Improvement*, 46(4), 247-262.
- Tanner, D. (2012). *Using statistics to make educational decisions*. Thousand Oaks, CA: Sage.
- Walsh, K., Glaser, D., & Wilcox, D. D. (2006). *What education schools aren't teaching about reading and what elementary teachers aren't learning*. Washington, DC: National Council on Teacher Quality. Retrieved from [http://www.nctq.org/nctq/images/nctq\\_reading\\_study\\_app.pdf](http://www.nctq.org/nctq/images/nctq_reading_study_app.pdf)
- Ye, H. (2009). Strength-based mentoring in pre-service teacher education: A literature review. *Mentoring & Tutoring: Partnership in Learning*, 17(3), 263-275. doi:10.1080/13611260903050205

# Principal and Literacy Coach: Collaboration and Goal Alignment

By Tina Selvaggi

---

*The literacy coach is an important member of the elementary school faculty. In the study described here, the author sought to obtain the insights of elementary principals regarding their working relationships with literacy coaches. Accordingly, she investigated the attitudes and beliefs of elementary principals and their perceptions of interactions with literacy coaches. The importance of collaboration, literacy goal alignment, and principals' support and interaction with the literacy coach were evident.*

---

## Research Design

Because the area of literacy coaching is continually evolving and changing, a need exists for more information and research about the relationships between literacy coaches and administrators. Mraz, Algozzine, and Watson (2008) found the role of the literacy coach is often open to interpretation from principals and classroom teachers. Some coaches are unsure of their roles because their responsibilities change and they are used differently, sometimes even in the same district.

Participants in this study were elementary principals (N = 5). They were selected through purposive sampling (Berg, 2009), in which the researcher uses knowledge about a group to select subjects who represent the population. In this case, the researcher made initial contact with participants at an international literacy coaching conference and selected those who expressed willingness to participate in the study. In order to add richness to the study, the principals who were involved ultimately represented schools in various states, including Florida, New Jersey, Texas, West Virginia, and the researcher's home state of Pennsylvania.

Surveys (Appendix) were distributed electronically to elementary principals and were used to solicit their attitudes, beliefs, and interactions with literacy coaches. The cross-sectional surveys (Creswell, 2003) collected the data at one point in time and were self-administered electronic questionnaires. The principals' survey was adapted from the work of Matsumura, Sartoris, Bicke, and Garnier (2009), who studied the actions and beliefs of principals in elementary schools that had recently implemented a new coaching model. Matsumura et al. found that principals' leadership contributed to the effective use of literacy coaches. The principals' survey also included a checklist of 18 items through which participants could indicate ways they supported and interacted with the literacy coach.

Limitations to credibility and authenticity exist in this study. The results may not be able to be generalized to a large population because a small sample was used. In addition, participants may have been hesitant to criticize their schools or their districts. Nevertheless, key themes emerge for consideration.

### Overview of Results

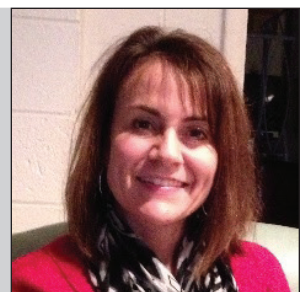
All five of the surveyed principals believed the literacy coach was influential in helping the staff change or improve literacy instruction. Similarly, three out the five principals believed the literacy coach was *extremely influential*, and two of the five believed the literacy coach was *very influential* in providing opportunities for collaboration among and between professionals in other beneficial ways. When asked for additional comments, principals stressed staff development as an important way the literacy coaches helped classroom teachers to change or improve their literacy instruction. One principal described how the literacy coach provided information on balanced literacy, while another stated the literacy coach met with teachers every 6 weeks to provide staff development. Individual meetings, grade-level group meetings, cluster coaching sessions, and ongoing training were just a few of the examples principals shared when asked about how the presence of the coach affected opportunities for collaboration among teachers. Respondents also noted that literacy coaches are often important to the principal because they are able to help the principal understand current literacy research and best practices (Wepner, Strickland, & Quatroche, 2014). One principal praised the literacy coach's ability to help her gain a "better understanding of the literacy model."

### Collaboration

When asked about collaboration between the literacy coach and faculty members, four of the principals surveyed said the coach was *extremely collaborative*. Only one principal, who called the literacy coach *somewhat collaborative*, saw the coach participating in other tasks besides collaborating with teachers. This result was supported by Mraz et al. (2008), who stated that principals believed coaches spent a significant amount of time coordinating assessment tasks rather than working with teachers. One principal stressed the importance of a nonthreatening approach that allows for open collaboration with teachers. The influence of collaboration on literacy instruction was supported by several researchers (Walpole & Blamey, 2008; Walpole & McKenna, 2013), who listed mentoring, building confidential relationships, and individual connections as important to a literacy coach's success with teachers.

Surveyed principals also identified collaboration between themselves and literacy coaches as very important. This recurring response generated a second theme found in the survey data. One principal described the literacy coach as "more than a coach....she is friend to me because when I have a question or need I feel free and comfortable asking her for help." In their research, Coskie, Robinson, and Egawa (2005) recognized the importance of people skills and developing trusting relationships along with content knowledge. The survey responses from this study confirmed the traits found in the Coskie et al. (2005) study as key components of collaboration.

**Dr. Tina Selvaggi** is an assistant professor in the Department of Literacy at West Chester University of Pennsylvania. Prior to joining WCU, she taught elementary school and gifted education and served as an instructional support teacher, as a reading specialist and, most recently, as a staff developer in Pennsylvania public schools. Selvaggi is a member of Beta Pi Chapter in Alpha Alpha state organization (PA). Her research interests include professional development and coaching, teacher-candidate preparation, and use of technology to enhance instruction. [tselvaggi@wcupa.edu](mailto:tselvaggi@wcupa.edu)



### Literacy Goal Alignment

Literacy goals are an important part of the elementary school curriculum. These goals can include, but are not limited to, aligning instruction to standards, regular opportunities for assessment to inform instruction, teaching strategies for reading complex texts, and improving student achievement on state and local assessments. When asked to what degree the literacy goals for the school aligned with the goals of the reading professionals, four of the five participating principals considered these goals to be *extremely well* or *very well aligned*. Only one principal believed the goals were *somewhat aligned*. This latter response was of concern, because Killion (2007) stressed the importance of a principal's support for coaches in the form of professional development, appropriate working conditions, and clear job expectations. If a principal does not see the literacy coach's goals to be aligned with the goals of the school, he or she may not offer the support needed for the success of the coach.

In comparison, all five principals surveyed reported the literacy coach and reading specialists worked either *extremely* or *very collaboratively* to achieve the school's instructional goals in literacy. One principal stated, "The coach meets one-on-one, with grade level groups, coaching sessions, ongoing training...many opportunities for collaboration!" The importance of communication between the principal and literacy coach was stressed in research by Toll (2014). Vogt and Shearer (2011) also discussed the different roles related to literacy coaching in a continuum from informal to formal. According to this research, informal coaching includes goal setting with teachers, providing materials, and acting as a co-learner. More formal coaching includes lesson modeling, co-teaching, and providing feedback. These roles were seen in the survey data as principals often described more formal approaches for involvement of literacy coaches, such as providing staff development, coaching, and meeting with grade-level groups. Table 1 presents the survey data gathered from elementary principals.

Table 1  
*Elementary Principals' (N = 5) Perceptions of the Roles of Literacy Coaches (Percentage Responses)*

Question	Extremely	Very	Somewhat	Not at all
How <b>influential</b> has the literacy coach been in helping staff improve literacy instruction?	60	40	0	0
To what degree has the literacy coach helped to provide opportunities for collaboration?	60	40	0	0
To what degree do literacy coach and reading specialist work collaboratively to achieve instructional goals in literacy?	80	0	20	0
To what degree do school literacy goals align with those of the reading professionals?	60	20	20	0
How well do the literacy coach and reading specialist interact?	80	20	0	0

### Principals' Support of and Interaction with the Literacy Coach

When asked about how the principals supported or interacted with the literacy coach, all five of the principals reported (a) talking with the literacy coach about work, goals, and professional development; and (b) attending grade-level meetings led by the literacy coach. The fact that all five principals listed these activities, which constitute, respectively, informal support and more formal support, suggests their importance.

Four of the principals also listed other activities that ranged from informally providing support to providing more formal support. Methods of informal support reported included (a) consulting with the literacy coach about important matters apart from coaching; (b) providing the literacy coach with books or other materials; and (c) helping literacy coaches deal with reluctant teachers. Methods of more formal support reported included (a) identifying the literacy coach as a resource to teachers, parents, and administrators; (b) encouraging teachers to work with the literacy coach; (c) arranging for the literacy coach to lead professional development or in-service sessions; (d) arranging time for teachers to meet with the literacy coach; (e) providing the literacy coach with an appropriate office or meeting room; (f) attending meetings between individual teachers and the literacy coach; and (g) attending book studies or professional development sessions led by the literacy coach. It was clear from these data that, whether the principal offered support through varied informal and formal activities, this support was still deemed necessary to the success of the literacy coach's work within the school.

Two of the principals listed additional examples of support for or interaction with the literacy coach. These included (a) scheduling regular meetings to discuss coaching visitations; (b) including the literacy coach in important curriculum-related activities apart from coaching (committee meetings, child-study team, etc.); (c) providing and encouraging the literacy coach to use time to meet with other coaches; (d) observing the literacy coach modeling lessons in teachers' classrooms; and (e) participating in "walk-throughs" of classrooms with the coach to identify effects of coaching.

Table 2 presents the survey data related to ways in which the principals provided support to or interacted with the literacy coach. One principal enthusiastically summarized the relationship between principal and literacy coach: "The literacy coach is an extremely valuable resource person for me as an administrator as well. I couldn't live without her!"

*“Because the literacy coach is an influential member of the elementary school faculty, the support of the principal is needed to ensure that the coach is successful in helping the faculty implement literacy instruction.”*



Table 2  
*Principals' Support of or Interaction with the Literacy Coach*

Interaction/Form of Support	%
Talk with coach about work, goals, professional development	100
Consult coach about important matters apart from coaching	60
Schedule regular meetings to discuss coaching visitations	40
Identify coach as a resource to teachers, parents and administrators	80
Include coach in important curriculum-related activities apart from coaching (committee meetings, child-study team, etc.)	40
Encourage teachers to work with coach	80
Arrange for coach to lead professional development/in-service sessions	80
Arrange time for teachers to meet with coach	80
Provide coach with an appropriate office or meeting room	60
Provide coach with books or other materials	60
Provide/encourage coach time to meet with other coaches	40
Help coach deal with reluctant teachers	60
Attend grade-level team meetings led by coach	100
Attend meetings between individual teachers and coach	60
Observe coach modeling lessons in teachers' classrooms	20
Attend book studies or professional development sessions led by coach	80
Participate in "walk-throughs" of classrooms with the coach to identify effects of coaching	40

### **Conclusion**

Although this research was limited in terms of number of participants, several themes about the interaction between principals and literacy coaches emerged from the surveys

of principals: (a) literacy coaches are influential in helping improve school-wide literacy instruction, (b) literacy coaches work collaboratively to achieve instructional goals in literacy, and (c) literacy coaches and reading specialists work together in aligning the school goals. The findings of this research made it clear that the work of the literacy coach is important because it is effective in promoting professional development and strengthening instructional practices in classrooms. Because the literacy coach is an influential member of the elementary school faculty, the support of the principal is needed to ensure that the coach is successful in helping the faculty implement literacy instruction.

The discussion should not end here; further research is necessary to ensure that all educators, parents, students, and political entities realize the value of job-embedded professional development and provide advocacy for the roles of literacy coaches in elementary schools. Opportunities for further research on literacy coaching should continue to develop and expand so that correlations between effective coaching and improved student achievement are made explicit. One way to supplement this research would be to study a larger and more diverse sample or to conduct a longitudinal study on the influence of the literacy coach on effective literacy instruction. Additional interviews and observations with other constituents, such as teachers, reading specialists, parents, supervisors, and students, would add to this body of work.

With the current budget constraints in education, the position of literacy coach is being challenged. Further research on the preparation and effectiveness of literacy coaches would give administrators evidence that funding the position of literacy coach is worthwhile to their teachers and to their students. Additionally, effective collaborative coaching may positively influence novice or ineffective teachers to strengthen their instructional practice.

Toll (2014) described today's literacy coach as someone who helps teachers recognize what they know and can do, assists teachers as they improve what they know and do, and supports teachers as they learn and do more. It is important to persist in understanding the roles of the literacy coach and how these roles can continue to do what Toll (2014) described. Without the challenge to improve instruction along with the modeling, planning, resources, and support literacy coaches can provide, effective literacy instruction will not continue to flourish, and student achievement may suffer.

## References

- Berg, B. L. (2009). *Qualitative research methods for the social sciences*. Boston, MA: Allyn & Bacon.
- Coskie, T., Robinson, L., Buly, M., & Egawa, K., (2005). What makes an effective literacy coach? *Voices from the Middle*, 12(4), 60-61. Retrieved from <http://www.ncte.org/journals/vm>
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed method approaches*. Thousand Oaks, CA: Sage.
- Killion, J. (2007). Web of support strengthens the effectiveness of school-based coaches. *Journal of Staff Development*, 28(1), 10-12, 14-16, 18, 74. Retrieved from <http://www.nsd.org/news/jsd/index.cfm>
- Matsumura, L., Sartoris, M., Bickel, D., & Garnier, H. E. (2009). Leadership for literacy coaching: The principal's role in launching a new coaching program. *Educational Administration Quarterly*, 45(5), 655-693. doi: 10.1177/0013161X09347341
- Mraz, M., Algozzine, B., & Watson, P. (2008). Perceptions and expectations of roles and responsibilities of literacy coaching. *Literacy Research and Instruction*, 47(3), 141-157. doi:10.1080/19388070802059076
- Toll, C. A. (2014). *The literacy coach's survival guide: Essential questions and practical answers* (2nd ed.). Newark, DE: International Reading Association.
- Vogt, M. E., & Shearer, B. A. (2011). *Reading specialists and literacy coaches in the real world* (3rd ed.). Boston, MA: Pearson/Allyn & Bacon.
- Walpole, S., & Blamey, K. (2008). Elementary literacy coaches: The reality of dual roles. *Reading Teacher*, 62(3), 222-231. doi:10.1598/RT.62.3.4

- Walpole, S., & McKenna, M. C. (2013). *The literacy coach's handbook: A guide to research-based practice* (2nd ed.). New York City, NY: Guilford Press.
- Wepner, S. B., Strickland, D. S., & Quatroche, D. J. (2014). *The administration and supervision of reading programs*. New York City, NY: Teachers College Press.

## Appendix A Principal Survey

Please answer the following questions based on the scale listed below the question or add comments where requested.

1. How influential has the literacy coach been in helping your staff improve literacy instruction?  
Extremely                      Very                      Somewhat                      Not at all
2. To what degree has the literacy coach helped to provide opportunities for collaboration among/ between professionals in other beneficial ways?  
Extremely                      Very                      Somewhat                      Not at all
3. To what degree do the literacy coach and the reading specialist work collaboratively to achieve the school's instructional goals in literacy?  
Extremely                      Very                      Somewhat                      Not at all
4. To what degree do your literacy goals for the school align with the goals of the reading professionals?  
Extremely                      Very                      Somewhat                      Not at all
5. How well do the literacy coach and reading specialist interact?  
Extremely                      Very                      Somewhat                      Not at all
6. Please provide at least one example of how the coach has helped classroom teachers change their literacy instruction.
7. Please provide at least one example of how the presence of the coach in the building has affected opportunities for collaboration among teachers.
8. How do you support and/or interact with the literacy coach? (Please check all that apply and feel free to add comments)
  - Talk with coach about work, goals, professional development
  - Consult coach about important matters apart from coaching
  - Schedule regular meetings to discuss coaching visitations
  - Identify coach as a resource to teachers, parents and administrators
  - Include coach in important curriculum-related activities apart from coaching (committee meetings, child-study team, etc.)
  - Encourage teachers to work with coach
  - Arrange for coach to lead professional development or in-service sessions
  - Arrange time for teachers to meet with coach
  - Provide coach with an appropriate office or meeting room
  - Provide coach with books or other materials
  - Provide/encourage coach time to meet with other coaches
  - Help coach deal with reluctant teachers
  - Attend grade-level team meetings led by coach
  - Attend meetings between individual teachers and coach
  - Observe coach modeling lessons in teachers' classrooms
  - Attend book studies or professional development sessions led by coach
  - Participate in "walk-throughs" of classrooms with the coach to identify effects of coaching
  - Other (please list below)
9. Please feel free to add any comments you would like to include about the role of the coach in your building (Optional):

Adapted from Matsumura, L., Sartoris, M., Bickel, D., & Garnier, H. E. (2009). Leadership for literacy coaching: The principal's role in launching a new coaching program. *Educational Administration Quarterly*, 45(5), 655-693. doi: 10.1177/0013161X09347341

# Translational Research in Education: The Benefits of a Partnership that Examines the Impact of Professional Development on Early-Literacy Outcomes

By Theresa Abodeeb-Gentile, Joan Pedro, and John Tapper

---

*Translational research addresses the dichotomy between research and practice and provides those who care deeply about public education with an opportunity to partner in an effort to close the research-to-practice gap. This study explored translational research at an Early Literacy Lab School, a kindergarten through Grade 4 school located in a city in the northeastern United States. The researchers detail the collaborative partnership between university faculty and school faculty as they came together to reform early-literacy outcomes and to address the needs of the school's students, who were largely identified as English language learners and of low socioeconomic status. The study explored both the use of specific literacy practices for improving early-literacy outcomes and the efficacy of professional development to increase teachers' skills in early literacy. The study contributes to the emerging paradigm of translational research in education and highlights transformative benefits between schools and universities in education.*

---

## Introduction to the Study

Educators are well versed in lamenting the disconnection between what professors *research* and what teachers *practice*. This disconnect helps to make a convincing argument for university and public leaders, school and university faculties, and federal and private grant makers to join efforts and adopt the emerging paradigm of translational research for integrating educational research and practice—for efficiently and effectively translating educational science into benefits for real people and closing the *lab-to-classroom* gap. By inference, insisting upon a two-way link between what education professors should produce—*relevant* research—and what teachers should do—*evidence-based* practice—might complement and facilitate current steps toward reform of both teacher education and evidence-based educational practice. That link, we suggest, is provided by the translational paradigm and is the heartbeat of the intrinsic co-dependence of research and practice, of professor and practitioner, and, in addition, outlines the potentially strong benefits of school and university partnerships.

Translational research gets its foundation from the medical sciences. This form of research suggests a bench-to-bedside approach, where the research has an immediate impact

on patient health (Woolf, 2008). Similarly, translational research in education suggests a relationship that depends on the effective translation of research into practice that has an immediate impact in educational settings. This form of research is highly dependent on the relationship between the researchers and the practitioners in the field. Study questions and designs are developed in collaboration with practitioners with the intention that there will be an immediate impact on the field, resulting in more positive outcomes for students.

### University and School Partnerships as Translational Research

Although translational research has traditionally been thought of as pertaining to medical research, recently a small body of work has emerged that links translational research with education (Brabeck, 2008; Hamos, 2006; Patronia, 1999, 2007; Smith & Helfenbein, 2009). As described, translational research in education provides a solid forum for those who care deeply about public education and have a passion for successfully translating knowledge and skills into evidence-based educational practice at all levels. Such evidence within this forum relies on relevant data from two equally important sources: scientific research and systematic community engagement. The logic of arguing for investigations that are designed to translate results quickly into relevant and usable outcomes—and to translate those outcomes back to inform current and future research questions—remains seductively simple yet difficult to achieve.

This qualitative study examined the emerging success of an intensive professional development (PD) program in early-literacy instruction for a high-poverty school with a large population of English language learners in a city in the northeastern United States. The research was carried out as part of a *translational* partnership between one such underperforming school and researchers at a private university and examined the effects of such a relationship and its impact on teacher PD and school change. This partnership



**Dr. Theresa Abodeeb-Gentile** is an associate professor and Director of Elementary Education at the University of Hartford in West Hartford, Connecticut. Her primary research interests are in the areas of curriculum and instruction in literacy education and in teacher education and professional development. She regularly works with urban schools to improve student achievement and promote quality instruction for all learners. A member of Alpha Chapter in Alpha Kappa State Organization (CT), Abodeeb-Gentile regularly presents at local, national, and international conferences. [abodeebge@hartford.edu](mailto:abodeebge@hartford.edu)



**Dr. Joan Pedro** is an associate professor and Associate Dean in the Department of Education Nursing and Health Professions at the University of Hartford in West Hartford, Connecticut. Pedro's primary research interests are in curriculum and instruction and in reflective practice. She promotes the importance of reflectivity when working with diverse learners and preservice and inservice teachers and regularly presents at local, national, and international conferences. [pedro@hartford.edu](mailto:pedro@hartford.edu)



**Dr. John Tapper** is an associate professor in the Department of Education at the University of Hartford in West Hartford Connecticut. Tapper's primary research interests are in the areas of math for struggling learners and student achievement in urban educational settings. In addition, he engages in a great deal of evaluation research and regularly presents at local, national, and international conferences. [jtapper@hartford.edu](mailto:jtapper@hartford.edu)

is considerably important for translating evidence-based practices via research in early-literacy contexts. According to Justice, Mashburn, Hamre, and Pianta (2008), teachers require significant support, including materials, supervision, and knowledge and skills related to leading instructional practices that support the developing needs of young children.

In this study, we focused on the following research questions:

1. In what ways has the PD program in early literacy at the Early Literacy Lab School (ELLS) developed over its first 2 years of implementation?
2. How has the translational partnership between the school and the university influenced changes in instruction and/or the PD model used?
3. In what ways have teachers and students responded to the instructional practices and dispositions developed through focused PD in early literacy?

The research questions and study design were developed from needs expressed by both the school administrators and the university faculty. This relationship between the early literacy lab school and university researchers is what defines translational work (Brabeck, 2008; Hamos, 2006; Patronia, 1999, 2007; Smith & Helfenbein, 2009) and makes a convincing argument for university and public leaders, school and university faculties, and federal and private grant makers to join efforts and adopt this emerging paradigm for integrating education research and practice to close the *lab-to-classroom* gap.

### **University and School Partnerships**

Since the advent of the No Child Left Behind Act in 2001, teacher quality and the role of PD have been at the forefront of efforts to improve student achievement in underperforming schools. One initiative that has shaped the effort to improve schools is the formation of partnerships between colleges of education and public schools. For years, schools and universities have explored partnerships for improved learning and student outcomes and for improved teacher education for preservice teachers (Goodlad, 1987). Stephens and Boldt (2004) reported that school/university partnerships have benefits to both colleges of education and to K-12 schools. However, partnerships involving universities and public schools have not always been successful. Rakow and Robinson (1997) described the relationship as a “dichotomy between the ‘ivory tower’ of the university and the ‘trenches’ of the public school” (p. 64) and suggested that, until recently, there have been few successful university/public school partnerships (Patterson, Shaver-Wetzel, & Wright, 2001). According to Kagen (1993), a difference exists in how university professors and teachers view the educational process. Successful partnerships have occurred between institutions of higher education and district schools when these partnerships were well planned, provided adequate resources for all activities, and systematically fostered a mutual respect (Dodge, 1993). One example is that of the University of Chicago’s partnership with teachers of the Chicago Public Schools (Wisniewski, 1999). The project’s goal was to help teachers use technology to augment the curriculum. To this end, personnel at The University of Chicago provided infrastructure, teacher training, system support, and the development of curriculum resources. In a similar way, the partnership discussed in this research study was developed from needs expressed by both the school administrators and the university faculty. It provided an intensive PD program in early-literacy instruction for educators at a high-poverty school with a large population of English language learners in a city in the northeastern United States.

In the past, teachers and teacher educators worked independently rather than collaborated with each other in schools on projects other than working together to mentor

preservice teachers in the best possible environment. Benefits to these collaborations include the fact that university faculty and school teachers do a better job together than either could accomplish alone, and those on both sides of the partnership become better educators. In making a decision to form any partnership, teachers and university educators are making a commitment to learn together how to do something new. A commitment to forming an intimate relationship with one another is important (Stephens & Boldt, 2004). As a result, the partnership between schools and universities becomes fertile ground for translational research. The aim of translating research into practice not only benefits school and university faculty but has great potential for impacting student outcomes as well.

### **Developing Teacher Efficacy through Professional Development**

PD is one platform that may lead to closing the *lab to classroom* gap between research and practice. Many school leaders and education policymakers agree that PD has the potential to increase teachers' skills. However, less agreement exists regarding what makes PD highly effective. A focus on specific content, the opportunity to implement new practices, and explicit reflection on implementation are key elements to PD that positively impact student outcomes (Desimone, Porter, Garet, Yoon, & Birman, 2002; Ingvarson, Meiers, & Beavis, 2005).

Most research on the efficacy of PD, however, has focused on teachers' development of content and pedagogical skills as separate from the development of these skills *in situ*. Increasing teacher content knowledge and pedagogical skill in isolation may not lead to long-term adoption of effective practices (Guskey, 2003). Rather, an iterative context of implementation and reflection is necessary for ongoing professional growth that affects student outcomes (Ingvarson et al., 2005).

Professional Learning Communities (PLCs) can provide context and ongoing support for teacher growth (DuFour & Eaker, 1998); however, student outcomes may vary or may not reflect an impact of the PLC if it is not carefully structured. Including university researchers in these contexts with a focus on translating research into practice may inform implementation of research results in a more immediate fashion and in turn impact student outcomes. Development of content knowledge and reflection on professional skills are key components of a PLC—a structure that supports both teacher professional growth and implementation of new teaching methods. In the context of this study, we believe that the effect of the wide variety of PD offerings and regular team meetings at the ELLS was to create an informal PLC that, ultimately, led to cohesion in the PD program. Researchers also participated with teachers in this context and debriefed with them on the PD offerings during focus groups that were part of the research design. Feedback from the PLCs was taken into consideration and became part of the data analysis that informed teacher practice and ultimately influenced student outcomes at the ELLS.

The development of an informal PLC was important to teacher growth at the ELLS. Although they did not implement the protocols of a formal PLC, teachers there focused their PD on student learning; they learned how to provide timely feedback to students and received the same from coaches, and they established a culture of collaboration toward effective practices. These practices and dispositions placed the emerging culture of the ELLS in line with those of other PLCs (DuFour, 2004). In this way, teacher PD was key to the translational relationship between the ELLS and the university researchers. This platform provided a window into teacher quality and student achievement that the university researchers noted was significant for answering the research questions of the study.

### Context

The participants in this translational study included administrators, teachers, and students at an urban, turn-around ELLS. The school consists of several pre-kindergarten through Grade 3 classes and is located in a city in the northeastern United States. The ELLS was in its second year of developing a model for early literacy for meeting the needs of the school's many English language learners. The school's population is drawn from a neighborhood in which Spanish is a common first language. The emerging model for literacy instruction relies heavily on PD in several areas of literacy instruction. The school was investigating both the use of specific literacy practices for improving early-literacy outcomes and the efficacy of PD to increase teachers' skills in early literacy. The researchers in the study, including the authors, came from a nearby private university in the Northeast and are faculty members in the elementary education teacher education program at the university.

*“ [T]he translational partnership between personnel at the [early-learning school] and the university appears to have had very positive effects for both the construction of new knowledge and for influencing student outcomes in literacy.”*

### Procedures

Qualitative data were gathered for the 2010-2011 and 2011-2012 school years. Researchers used inductive thematic analysis (Ely, Anzul, Freidman, & Garner, 1991) to identify features, strengths, and weaknesses in literacy instruction and in the PD used to support that program. Initial data included audio files and field notes from research meetings with district leaders, focus groups with teachers and school leaders, classroom observations, and interviews with preservice teachers working at the school. Data from these sources were analyzed and coded for initial themes and patterns that emerged. These initial data sources and thematic analysis were used to develop and provide formative reports to the district and school leaders as part of an iterative process of research and improvement. These reports were used to make improvements in both PD for teachers and in the model of instruction provided to PreK-3 students. These formative reports were also subsequently used as data within the study to examine the impact of the translational relationship between the university and the ELLS.

### Triangulation

Triangulation of the data was established by cross-checking data from focus groups, field notes, and video captures of instruction that were collected over time (Ely et al., 1991). In addition, multiple data sources were analyzed, including other cultural artifacts (e.g., district reports, assessment reports). Assessment samples (e.g., Developmental Reading Assessment [Beaver, 2007] and state testing data) also provided data sources from which we could cross check and establish recognizable patterns of student outcomes and the impact of teacher practice.

### Coding

Because the school was a turn-around school (a chronically underperforming school that has been identified by the state as needing major intervention, including new



administration and at least 50 % or more new staff), marked and immediate changes in school culture and student success were the goals. Both researchers at the university and school officials believed that developing a strong PD model was a key to turn-around success. Drawing on the conceptual framework of developing teacher efficacy through PD, we developed codes for analyzing the multiple sources of data. The major tenets from the literature that framed our work and the data sources in which they were coded are summarized in Table 1.

A descriptive coding (Saldana, 2009) of classroom observations and field notes, along with a thematic analysis of administrator and teacher focus-group transcripts and district formative reports, revealed in the initial codes that teacher experience and competence were widely varied, leading to varied results in PD and in the overall coherence of the early-literacy instructional model. The researchers summarized the data (See Table 1) and shared information with school leaders around the incoherence in PD and its impact on the development of an exemplary model of literacy instruction. For example, teachers often reported that they needed more PD on content. This created some incoherence in the PD as it was often structured around materials and programs that the school was intending to implement. This disconnect was very visible as the school adopted a basal reading program that teachers reported was in conflict with the content-based PD they said they needed. They argued that the basal reading program, while providing them with scripted material, did not support the diversity of learners they had in their classrooms nor did it provide them with an understanding of how to meet students' individual diverse needs through evidence-based practice. Time for focused reflection and for communicating their needs for PD helped to promote greater efficacy in teacher practice.

Table 1  
*Initial Themes from Coding*

Initial Coding Themes	Data Sources Analyzed
Content-focused professional development directly impacts teacher knowledge	Field Notes Focus Groups Formative Evaluation Reports Video Tapes
Successful communication between teachers influences efficacy of professional development	Field Notes Focus Groups Formative Evaluation Reports
Professional development together with time for focused reflection directly impacts instructional efficacy	Focus Groups Field Notes Video-Tapes Assessment Samples

Following this initial descriptive coding and thematic analysis, researchers reread the initial data set and then worked to revise, expand, and collapse codes using axial coding (Strauss & Corbin, 1998; Saldana, 2009). This method resorts and compares all initial codes while considering context, conditions, and interactions of data sources and participants. The refining of initial codes collapses and reduces the number of codes and allows for categorizing and renaming (Saldana, 2009). The final codes, detailed below,

provided evidence of the major factors that influenced teacher efficacy and school reform as a result of the translational partnership within the study.

### **Experience and Competence Varied**

Seventy-four percent of the classroom teachers at the ELLS were in their first 3 years of professional service. Evidence of still-developing professional skills could be found in classroom management, student engagement, and implementation of instructional practices. In addition, classroom observations confirmed focus-group concerns that teachers were at various levels of professional competence with respect to knowledge and skills. Studies suggested that competence and teacher experience can be correlated to self-perceived efficacy by both novice and career teachers (Tschannen-Moran & Hoy, 2007). Studies also showed a greater correlation for student achievement based on teachers' knowledge and skills rather than solely on teachers' years of experience (Darling-Hammond, 2000). Both formative reports to the school and district, along with researchers' field notes, showed that PD did not seem to address this disparity in knowledge and skill during the first year, especially because there was such variability in both teachers' experience and content knowledge. Classroom management skills also seemed to be a significant variable that impacted teachers' perceived efficacy and overall competence based on field notes from classroom observations and focus group data. Table 2 shows a sample of how data sources were coded to show evidence that experience and competence varied.

Table 2  
*Evidence of Experience and Competence*

Data Source	Evidence
District Formative Report: March 22, 2011	...a focus on professional development for implementing programs may not be sufficient to building teacher skill for supporting struggling readers... An articulated focus for professional development, explicitly connected to the school's literacy model, would help to give teachers the sense that they are going deeply into professional development aimed at supporting the school's literacy mission
Field Notes, April 20, 2011	Both ongoing pre-service student feedback and follow up classroom observations by researchers noted that by April, classrooms seemed to take on more consistency in both their appearance, schedule and instructional practices however classroom management remained an ongoing issue and success ranged widely across classrooms.

### **Professional Development and Programs Versus Content**

*Professional development and programs versus content* were revealed as the most significant themes that emerged from the data in the first year of the study. For example, teachers expressed that there was often a disconnect between the PD on best practices in literacy instruction and the materials they were provided. Small group instructional reading was one such example of this. Although teachers understood small-group, focused reading instruction within students' instructional levels to be an important practice that targeted processing for effective reading, they were initially given a basal reader that did not have materials to support small-group instructional reading. In addition, teachers

had PD that focused on the content of the use of multiple strategies and crosschecking during reading. However, teachers were expected to follow the script of the basal reader, which did not allow for instruction on flexible strategy use or provide time for reading with individual students to assess their needs. The teachers reported that the PD focused on programs did not improve their instructional efficacy and that the content-based PD was more beneficial. Data pertaining to ongoing PD were particularly relevant, as there were distinctive changes to both school culture and the quality of teacher practice that seemed to occur between January and June in the first year of implementation. The data revealed that a newly implemented, district-wide PD model was largely responsible for structuring what teachers reported as more meaningful PD.

PD data revealed tensions that arose from the teachers due to the use of scripted reading programs mandated by district leaders and school administrators. Data also suggested that teachers thought different instructional practices would be more supportive of student success, but there was not consensus on what those practices should be. Based on this evidence, teachers reported a lack of effectiveness from use of scripted programs was influencing student achievement. They reported that they needed more effective alternatives to address literacy content; however, many were frustrated and cited the need for PD that focused on content knowledge in reading. Whitehurst (2002) supported the idea that quality PD should emphasize content and should be in depth, i.e., more than just one-day workshops, and, additionally, that quality PD should have embedded peer collaboration and specific opportunities for teachers who are in their induction phases of teaching. Tables 3 and 4 show sample evidence of coding for PD and programs versus content.

Table 3  
*Evidence of Professional Development*

Data Source	Evidence
District Meeting field notes, March 9, 2011	School leaders said that, "unlike the traditional model of professional development that is common in most schools, TAP [Teacher Advancement Program] provides teachers with professional development in reading and language arts that is ongoing, job-embedded, collaborative, student centered and led by expert instructors."
District Formative Report, May 29, 2011	A substantial majority of teachers in the focus group expressed the opinion that TAP trainings were among the most helpful in-service programs they received and represented positive movement in professional development at the school. The TAP model was also acknowledged by the school administration as having a positive effect on teacher practices and on overall school culture and morale. These leaders seemed to agree with teacher perceptions that TAP training was helping to positively address some emerging challenges with professional development in this first year of program implementation. Teachers felt as though the professional development they are receiving is having a direct impact on classroom instruction and instructional decision-making.

Table 4  
*Evidence of Programs Versus Content*

Data Source	Evidence
Field Notes, April 20, 2011	By contrast, school administrators revealed that, while they wanted teachers to use instructional innovation and implement best practices, they were concerned that teachers did not have a strong enough background to implement all the necessary skills without relying on scripted programs.
District Formative Report, May 29, 2011	Both focus groups and classroom observations revealed that teachers did appear to be at least somewhat knowledgeable about literacy content, though the extent of this knowledge—and evidence of its use in a classroom setting—seemed to follow experience. During classroom observations there were some classrooms that demonstrated more student engagement and a higher level of instruction than others. In many cases, though, teachers were able to speak more clearly about how reading instruction should occur than was consistently evident during classroom observations.

### Findings

The findings in this study are based on the data analysis that resulted from the descriptive and axial coding that took place over 2 years from multiple data sources collected within the study. Year 2 of the study marked a major shift in PD and the overall success of the school. This major shift, a result of the ongoing research and communication between university researchers and school administrators and teachers, seemed to have had a positive impact on overall student achievement, which was visible in the large gains made on state testing from Year 1 to Year 2.

Other major shifts that were visible by the end of Year 2 included a focus on data. Teachers participated in regular data team meetings facilitated by the school's literacy coach. Another focus was time for reflection. During the PLCs and PD that was ongoing at the ELLS, teachers had time for targeted reflection on their practice and were often asked to bring evidence of instructional efficacy to share with other teachers. This proved to be a significant practice for improving instruction and creating an environment where teacher self-efficacy had an impact on student outcomes. Finally, teachers received more of the content-based PD they needed, which resulted in a focus on more content-specific instruction based on students' needs rather than on the implementation of scripted programs. In response to the teachers' expressions that more PD was needed for content related to instructional practice versus program implementation, university researchers were asked to participate in focused PD with school personnel. After the need for content-specific PD was identified, researchers spent several days in classrooms modeling effective practices such as formative assessment during independent and small-group reading, which was videotaped and used for school wide PD sessions. In addition, PD was provided on small-group reading instruction, on responding to student needs based on formative assessment, and on conferring to improve reading efficacy. Teachers, administrators, and researchers then designed and participated in a series of workshops that debriefed these

practices and provided time for collaboration to plan for implementation of these practices during the literacy block.

This particular content-focused PD seemed to have a positive effect on classroom teachers, and changes to instruction during the literacy block were visible to both school personnel and researchers following the focused PD sessions. In addition, videotaped excerpts taken during the literacy block following PD revealed that teachers were more consistently engaged in literacy practices that focused on meaning. These findings were consistent with other studies that indicated PD that is focused on content and curriculum results in changes to instructional practice and achievement (Whitehurst, 2002). Table 5 shows a brief sample of data that demonstrate the changes made visible by the end of Year 2. These changes highlight the overall findings of the study.

Table 5  
*Evidence of Significant Changes in Year 2*

Changes in Year 2	Evidence	Data Source
Major changes to the PD were implemented at the administrative level which impacted test scores.	...The test scores were the most surprising especially in reading. When I created my objectives, I was very conservative due to the previous' year scores; however, I knew by November that this class was different and the scores will be much higher than predicted. Although 87% was astonishing but not quite shocking due to the students' internal drive <i>and the drastic changes we made this year.</i>	Administrator Summary Report July 2, 2012
Major changes in PD model impacted content knowledge, instruction, and student success.	<i>Last year, we learned a different strategy every day whether it be reading comprehension, phonics or fluency but my mind was on overload [because] I was learning a new strategy every single day ... This year, which we love, we have a data meeting where we focus on Data Driven instruction and what we need to work on with our students and then another day is grade level cluster where we are taught a new concept or strategy where the literacy coach meets with us and then the next day we meet on our own with our team to think about how we can implement the new strategy or concept and to collaborate with specialists and other support staff in the school and then another day they actually give us time to plan lessons like common planning time and then one day is reading clinic and we tutor.</i>  <i>...this year, I feel like I can actually think about how to implement new learning and internalize it and really succeed with it. Before it was like pushing way too much in a jar.</i>	Teacher Focus Group April 24, 2012

Teachers implementing meaningful literacy practices	<p>Teachers are using a variety of teaching devices aimed at improving reading. Main goals: contextualizing the reading, and keeping students engaged.</p> <p>Teachers are contextualizing reading by drawing from the student's own experience; using visual aids/questions; ...having students discuss with peers; learning more from outside sources; asking "thick" questions; making inferences; using both kinesthetic and auditory questions; and with game based activities (such as rhyming).</p> <p>Teachers are engaging students by using skill-level appropriate reading material; by creating a sense of ownership, and thereby a sense of pride in one's ideas; using varied learning formats, both interactive and passive; by teaching in small and large groups as well as individually; and by encouraging students.</p>	Analytic Memo from videotapes May 29, 2012
Statewide test scores showed largest increase among all schools in the district. Went from 51.2 % proficiency to 87.1% proficiency	<p>The test scores were the most surprising especially in reading...Although 87% was astonishing</p> <p>...the Pre K-3 elementary school scored the highest increase with an outstanding gain of 35.9 points.</p>	<p>Administrator Summary Report July 2, 2012</p> <p>District Wide Press Release July 20, 2012</p>

### Implications

The ELLS and the university personnel were engaged in a translational relationship to improve literacy achievement and gain insight into the efficacy of coordinated PD for increasing teacher skill with literacy instruction. Qualitative data suggested that, during a 2-year period, faculty at the ELLS were engaged in PD practices that would improve student outcomes. Empirical data from the last 2 years of Connecticut Mastery Tests (CMT) supported the conclusion that the ELLS PD practices had a positive effect on student outcomes. In 2011, 51% of students at the ELLS met state literacy standards as measured by the CMT. This figure was not surprising given the large population of students living in poverty and the large number of English language learners at the school. In the second year of implementation (2012), however, with the support of university faculty and a more coherent approach to PD, ELLS personnel saw 87% of Grade 3 students meet or exceed state standards for literacy. This represented a 57% increase in the number of students meeting literacy standards in just 1 year. In the short term, at least, the translational partnership between personnel at the ELLS and the university appears to have had very positive effects for both the construction of new knowledge and for influencing student outcomes in literacy. In addition, teachers' formation of a PLC, along with more content-focused PD, seemed to point toward a promising model for continued growth and student achievement.

These findings also suggest that there are significant ways in which school and university partnerships might work to improve instructional practice and student achievement. Further, implications inform teacher education for both preservice and in-service teachers. The promotion of collaboration and mastery of content knowledge in teacher education are important topics of consideration. These findings suggest that teachers' content

knowledge is essential for student achievement and must be a significant focus for both preservice and inservice teacher education. In addition, content knowledge should reflect current curriculum standards relevant to P-12 education, and the educators at schools and universities would serve each other well by working together in collaboration in translational partnerships toward this end.

## References

- Beaver, J. (1997). *Developmental Reading Assessment*. Boston, MA: Pearson Education.
- Brabeck, M. (2008, May 21). Why we need translational research: Putting clinical research to work in classrooms. *Education Week*. Retrieved from <http://www.edweek.org/ew/articles/2008/05/21/38brabeck.h27.html>
- Cisneros, L. (2011, June 18). NIH director says timing tight to reengineer translational science. *The University of California, San Francisco*. Retrieved from <http://www.ucsf.edu/news/2011/07/10206/nih-director-says-timing-right-reengineer-translational-science>
- Darling-Hammond, L. (2000). Teacher quality and student achievement. *Education Policy Analysis Archives*, 8, 1.
- Desimone, L. M., Porter, A. C., Garet, M. S., Yoon, K. S., & Birman, B. F. (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis*, 24(2), 81-112.
- Dodge, B. J. (1993). School-university partnerships and educational technology (Report No. EDO-IR-93-3). Syracuse, NY: Office of Educational Research and Improvement. (ERIC Document Reproduction Service No. ED358840)
- DuFour, R. (2004). What is a "professional learning community"? *Educational Leadership*, 61(8), 6-11.
- DuFour, R., & Eaker, R. E. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Bloomington, IN: National Education Service.
- Ely, M., Anzul, M., Friedman, T., Garner, D., & Steinmetz, A. M. (1991). *Doing qualitative research: Circles within circles*. London, UK: Falmer Press.
- Gershon, W. S. (Ed.). (2009). *Collaborative turn: Working together in qualitative research*. Rotterdam, NL: Sense.
- Goodlad, J. I. (1987). *The ecology of school renewal. Eighty-sixth yearbook of the National Society for the Study of Education, part I*. Chicago, IL: University of Chicago Press.
- Guskey, T. R. (2003). What makes professional development effective? *Phi Delta Kappan*, 84(10), 748-50.
- Hamos, J. (2006, Nov. 3). Teaching science in the 21st century: Translational research in education. *NSTA Web Digest News*. Retrieved from <http://www.nsta.org/publications/news/story.aspx?id=52868>
- Ingvanson, L., Meiers, M., & Beavis, A. (2005). Factors affecting the impact of professional development programs on teachers' knowledge, practice, student outcomes and efficacy. *Education Policy Analysis Archives*, 13, 10. Retrieved from <http://epaa.asu.edu/ojs/article/view/115>
- Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early Childhood Research Quarterly*, 23(1), 51-68.
- Kagen, D. (1993). Snapshots from high school: Teachers' vs. professors' views [Electronic version]. *Educational Leadership*, 50(6).
- Lagemann, E. C. (2008). Educational research as a distributed activity across universities. *Educational Researcher*, 37(7), 424-428.
- National Council for Accreditation of Teacher Education. (2010). Transforming teacher education through clinical practice: A national strategy to prepare effective teachers. *Report of the Blue Ribbon Panel on Clinical Preparation and Partnerships for Improved Student Learning*. Retrieved from <http://www.ncate.org/LinkClick.aspx?fileticket=zzeiB1OoqPk%3D&tabid=715>
- Patterson, S. K., Shaver-Wetzel, K. D., & Wright, V. H. (2001). Public school and university partnerships: Problems and possibilities. *Electronic Journal for the Integration of Technology in Education*, 1(1).
- Petronia, S. (1999). "Translating scholarship into practice": An alternative metaphor. *Journal of Applied Communication Research*, 27(2), 87-91.
- Petronia, S. (2007). JACR commentaries on translating research into practice: Introduction. *Journal of Applied Communication Research*, 35(3), 215-217.

- Rakow, S., & Robinson, L. (1997). Public-school/university partnerships. *Education Digest*, 63(3), 64-69.
- Smith, J. S., & Helfenbein, R. J., Jr. (2009). Translational research in education: Collaboration and commitment in urban contexts. In W. S. Gershon (Ed.), *Collaborative turn: Working together in qualitative research* (pp. 89-104). Rotterdam, NL: Sense.
- Stephens, D., & Boldt, G. (2004). School/university partnerships: Rhetoric, reality, and intimacy. *Phi Delta Kappan*, 85(9), 703-707.
- Tschannen-Moran, M., & Hoy, A. W. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education*, 23(6), 944-956.
- Whitehurst, G. J. (2002, March). *Scientifically based research on teacher quality: Research on teacher preparation and professional development*. Presentation at White House Conference on Preparing Tomorrow's Teacher, Washington, DC.
- Wilson, S. M., & Berne, J. (1999). Teacher learning and the acquisition of professional knowledge: An examination of research on contemporary professional development. In A. Iran-Nejad & P. D. Pearson (Eds.), *Review of Research in Education*, 24 (pp. 173-209). Washington, DC: Sage.
- Wisniewski, M. (1999). Counting on computers. *Electronic School.com*. Retrieved from <http://www.electronic-school.com/199909/0999f3.html>
- Woolf, S. H. (2008). The meaning of translational research and why it matters. *The Journal of the American Medical Association*, 299(2), 211-213.



# Experiencing the Common Core State Standards for Mathematical Practices

By Kyoko Johns

---

*The author shares an approach to helping preservice teachers understand the instructional demands placed upon them by evolving standards. The specific discipline discussed is mathematics, but the concept may be applied to any subject area.*

---

How do future teachers who have learned mathematics and other subjects in a more traditional classroom learn to teach in ways that align with new standards such as the Common Core State Standards (CCSS)? In this article, I provide a description of an activity from a math methods class that helped future teachers understand the concept of number sense. Specifically, I explain how the activity developed mathematical concepts from the Common Core State Standards by using questioning strategies to guide students to make sense of the number system.

Teachers must have conceptual understanding of what content standards mean, how they translate into performance standards, and how best to help their students meet those standards. The best practice that combines the content knowledge and pedagogical knowledge based on Shulman's (1986) Pedagogical Content Knowledge (PCK) theory has been the focus of studies in the past (Ball & Bass, 2003; Ball, Thames, & Phelps, 2008; Phelps, 2005), in which researchers emphasized that teachers' content knowledge combines with the knowledge of teaching and learning to affect student achievement. Preservice teachers in teacher-education programs should have many opportunities to participate in problem-based lessons that connect the National Council of Mathematics Teachers (NCTM) Content and Process Standards if they are to become effective mathematics teachers in today's classrooms.

Understanding the components of such lessons can guide the young educators in future lesson development and delivery that will encourage their students to problem-solve using the Standards for Mathematical Practice (Common Core State Standards Initiative, 2011). The CCSS Mathematical Practice Standards include the following:

1. Make sense of problems and persevere in solving them;
2. Reason abstractly and quantitatively;
3. Construct viable arguments and critique the reasoning of others;
4. Model with mathematics;
5. Use appropriate tools strategically;
6. Attend to precision;
7. Look for and make use of structure;
8. Look for and express regularity in repeated reasoning. (Common Core Standards Initiative, 2012)

What does a mathematics lesson look like in order for preservice teachers to develop content knowledge for teaching? What should preservice and classroom teachers take into consideration when developing a problem-based lesson that will encourage the students to experience the CCSS Standards for Mathematical Practice?

Preservice teachers in their senior year of the elementary education program at a southeastern U.S. college participated in various standards-based lessons that incorporated problem solving activities during the mathematics method course. One of the lessons was on place value, based on the second grade mathematics content standards. The Common Core State Standards state that second grade students should

- ✦ Understand the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones (Math.Content.2.NBT.A.1);
- ✦ Understand that a hundred can be thought of as a bundle of ten tens—called a ‘hundred’ (Math.Content.2.NBT.A.1.a);
- ✦ Understand that the numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones; Math.Content.2.NBT.A.1.b);
- ✦ Read and write numbers to 1000 using base-ten numerals, number names, and expanded form (Math.Content.2.NBT.A.3).

Accordingly, learning objectives for this lesson were to represent three-digit numbers using place value mats and base-ten blocks and to read and write three-digit numbers using base-ten numerals, number names, and expanded form. Preservice teachers were asked what they knew about place value and what they wanted to know about the topic and created a class KWL (Know, Want to Know, Learned) chart together to start the lesson.

The preservice teachers then explored the concepts using the place-value mats and base-ten blocks and shared their discoveries before moving to the main part of the lesson. The first task was to show the number “114” using the fewest number of base-ten blocks. A volunteer showed how he or she represented 114 using online base-ten blocks such as those found at the National Library of Virtual Manipulatives (<http://nlvm.usu.edu>), which were projected on an interactive whiteboard or via projector. Preservice teachers recorded the drawing of the base-ten blocks in the base-ten language (1-hundred, 1-ten, and 4-ones) and in the expanded form ( $100 + 10 + 4$ ) in their math journals. The same procedures were subsequently repeated with more numbers to develop familiarity with the place-value concepts and visual representations.

After preservice teachers modeled with the base-ten blocks, the base-ten language, and the expanded forms, the next task prompted them to show different ways to represent a number and to record their varied solutions. Several volunteers shared these solutions and notes and discussed their opinions and thoughts to help the class come to consensus regarding all the combinations shared by classmates.

The last task challenged the preservice teachers to work independently or in a small

**Dr. Kyoko Johns**, an assistant professor of mathematics education, teaches elementary mathematics methods at the credential level and supervises practicum teachers at Jacksonville State University in Jacksonville, Alabama. Her areas of interest include examining students’ thinking processes when solving mathematical problems, investigating social and cultural effects on mathematics education, and exploring ways to incorporate technology in the classroom. She is a member of Alpha Iota Chapter in Beta State Organization (AL). [kjohns@jsu.edu](mailto:kjohns@jsu.edu)



group to find all the combinations to represent a number such as “123” and to record their findings. They were encouraged to find an appropriate method to organize the data and to find a pattern among the different combinations. Most students preferred to work with a partner or a group of classmates. The last task was especially challenging for them because many were not used to visualizing a number based on the place value. They knew the concepts of each place having a value of 10 times the place to its right—such as “100 could be thought of as a bundle of ten 10s”—and each place having a value of  $1/10$  to its left—such as “10 could be thought of as one tenth of 100”—as mathematical procedures because they had learned how to “borrow” when solving multi-digit addition and subtraction problems. However, many were not able to explain their understanding of the concepts beyond the procedure. To facilitate the discussion during the lesson, the instructor used questions and prompts:

- ✦ How do you know you have the right answer?
- ✦ Can you think of another way to represent the number?
- ✦ Do you agree with his/her explanation? Why? Why not?
- ✦ How many hundreds did you use? How many tens did you use? How many ones did you use?
- ✦ Can you explain how you know that you have (number)?
- ✦ Use words and numbers to explain the value of all of the blocks you have now.
- ✦ How do you know that you have found all the combinations to represent 123?
- ✦ Explain how you organized your data.
- ✦ Did you find any patterns as you recorded your data? Explain.

The conversations during this phase of the lesson provided a rich context that addressed the CCSS Mathematical Practice Standards:

1. *Make sense of problems and persevere in solving them:* Preservice teachers discussed their understanding of the challenge to “Find all the combinations to represent the number ‘123’ using the base-ten blocks” and worked until they believed they had accomplished the task. They first discussed their preconceptions that the place-value system only allowed for one digit to be placed in each place. They needed to recognize that combinations such as “1-hundred, 1-ten, and 13-ones, as in  $100 + 10 + 13$ ” and “0-hundred, 12-tens, and 3-ones, as in  $120 + 3$ ” both represent 123 even though two digits were used in the ones place for the first combination and in the tens place in the second combination. This opened up a very interesting discussion, as many of them were able to connect this concept with the “borrowing” strategy when adding and subtracting multi-digit numbers they had used for many years and had an “Aha!” moment.

2. *Reason abstractly and quantitatively:* Preservice teachers used the base-ten blocks and the number names to explain how they were representing the number. Some of them struggled with an idea of having more than 9 in any place. For example, some preservice teachers did not totally understand the concept of having two digits in a place holder as explained above. It took many attempts at modeling with the manipulatives and different explanations from their classmates for some to grasp the concept. More activities with manipulatives were needed to help them fully understand and be able to explain this concept. This understanding is crucial when one is using mental computation.

3. *Construct viable arguments and critique the reasoning of others:* Preservice teachers tested each other’s solutions by asking questions and proving their beliefs during the lesson. They posed questions such as “How did you get that?” “Could you show me what you did?” and “I don’t agree with what you said. Let me show you what I did.” Most of them reflected that they had not had such conversations in mathematics classrooms as elementary

students. Rather, they had learned how to solve problems by simply watching and listening to their teachers explain—and then following the same procedure as they solved similar problems afterward. Preservice teachers agreed that communicating with others helped them understand the concept better and exposed them to different perspectives.

4. *Model with mathematics*: Preservice teachers used the base-ten blocks, drawings, and number names to show numbers in various ways. Many of them stated that the use of the base-ten blocks helped them understand the exact meaning of the concepts of each place having a value of 10 times the place to its right and each place having a value of  $1/10$  to its left. They liked modeling with concrete materials before moving on to the number representation, which was more abstract.

5. *Use appropriate tools strategically*: Representing the numbers using actual and online base-ten blocks made it easy for preservice teachers to visualize the concepts. They utilized charts and tables in their math journals to organize data during the last task of finding all the combinations to represent the number “123.” Some drew pictures of base-ten blocks, while others recorded the expanded forms of different combinations. Still others created a chart that resembled a place-value chart. This was interesting because they had all used an actual place-value mat with the base-ten blocks in the prior tasks to represent numbers, yet many did not utilize the place-value chart as a way to organize the data.

6. *Attend to precision*: Preservice teachers were required to show the number “123” and find all the combinations. The instructor asked questions such as “How do you know you have all the combinations for the number 123? Can you explain how you organized your data to make sure you have all the combinations?” to

challenge preservice teachers to express their precise thinking throughout the task. This provided opportunities for preservice teachers to reflect on their thoughts and ideas. Many of them revised their strategies and solutions after they explained their thought process to the instructor. Reflecting on one’s problem-solving strategy and checking for accuracy were important steps in the problem-solving procedure.

7. *Look for and make use of structure*: Preservice teachers were to find a pattern from the combinations of the base-ten blocks that connected the concepts of each place having a value of 10 times the place to its right and each place having a value of  $1/10$  to its left. As they worked in small groups and shared their findings with others, many were able to discover that if they reduced one unit from the place to its left, they added 10 to the place itself. For example, the first combination could be “1-hundred, 2-tens, and 3-ones” then the next could be “0-hundred, 12-tens, and 3-ones”

8. *Look for and express regularity in repeated reasoning*: Preservice teachers were encouraged to organize the data in order to find regularity in the pattern as they explored the base-ten block combinations. Many were successful in finding the pattern as they worked on the task and created a chart or table that represented the combinations. Some found the pattern early and completed a place-value chart quickly, while others stated that the number of combinations for 123 would be infinite and struggled to find a pattern until the very end. At the end of the lesson, they looked accomplished and proud as they shared

“ Teachers must have conceptual understanding of what content standards mean, how they translate into performance standards, and how best to help their students meet those standards. ”

the pattern, which showed 10 more units added to the unit to the right each time a greater unit was reduced by one.

Preservice teachers reflected on the lesson about place value afterward, and many expressed that they understood place value better as a result of manipulating and visualizing the concept with the base-ten blocks. These college seniors were truly engaged in the mathematics tasks with manipulatives and involved in a lively discussion. They experienced the Standards for Mathematical Practice as their future students would. This kind of lesson thus supported the preservice teachers' ability to develop standards-based lessons and a learning environment in which future students may discover and explore mathematical concepts as they did in this lesson. By directly experiencing the idea that learning only takes place when the students are truly engaged in the tasks and meaningful conversations (Ball & Bass, 2003; Ball, Thames, & Phelps, 2008), these preservice teachers better understood the linkage between standards and instruction to help students meet those standards.

## References

- Ball, D. L., & Bass, H. (2003). Making mathematics reasonable in school. In J. Kilpatrick, W. G. Martin, & D. Schifter (Eds.), *A research companion to Principles and Standards for School Mathematics* (pp. 27-44). Reston, VA: National Council of Teachers of Mathematics.
- Ball, D. L., Thames, M. H., & Phelps, G. (2008). Content knowledge for teaching: What makes it special? *Journal of Teacher Education*, 59(5), 389-407.
- Common Core State Standards Initiative. (2011). *Common Core State Standards Initiative*. Retrieved from <http://www.corestandards.org>
- National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). *Common Core State Standards for Mathematics*. Washington, DC: Authors.
- Phelps, G. (2009). Just knowing how to read isn't enough! What teachers need to know about the content of reading. *Educational Assessment, Evaluation and Accountability*, 21(2), 137-154.
- Utah State University. (1999-2010). *National library of virtual manipulatives*. Retrieved from <http://nlvm.usu.edu/en/nav/vlibrary.html>

---

## Book Review

# illuminating the Complex: Seeing Developmentally Appropriate Practice in Beloglovsky and Daly's *Early Learning Theories Made Visible*

By Angie Quinn

Beloglovsky, M., & Daly, L. (2015). *Early Learning Theories Made Visible*. St. Paul, MN: Redleaf Press. 220 pages. ISBN: 9781605542362

---

*The author reviews a resource for novice educators, child care providers, and parents who are interested in theory and practice for early-childhood education. Although somewhat limited in overall scope, the reviewed text provides ample food for thought about early-learning philosophy and its application.*

---

Beloglovsky and Daly (2015) call *Early Learning Theories Made Visible* a blueprint of developmentally appropriate practice for early-childhood learning experiences. Written in response to the various arguments for different methods and beliefs surrounding early-childhood education and differing areas of focus in educating young children, *Early Learning Theories Made Visible* has appeal for all who agree early concepts of learning, vocabulary-building, student-negotiated learning, and problem solving are critical even for the very young. In addition to brief overviews of theories by prominent psychologists and philosophers that guide processes by which children are systematically educated, three goals emerge: (a) to address the discrepancy between theory and practice, (b) to discuss the challenge of play-based learning in a standards-based context, and (c) to encourage reflective practice and possession of a strong theoretical foundation for decision-making among early-childhood education providers.

The authors summarize seven theorists from the field of early-childhood education; relate each theorist's key concepts to an experience, conversation, or exploration with one home-based child care provider; and analyze the anecdote relative to the highlighted theory. Building a rock garden, examining skeletal replicas, and building language schema for pirates and treasures become illustrations of Piaget's stages of development and of the importance of children's autonomy and opportunities to manipulate their environments and experiences and to participate in decisions about what and how they learn. Major contributions of Erikson, Vygotsky, Maslow, Dewey, Gardner, and Derman-Sparks are illustrated through analysis of many child-centered, play-based experiences such as visits to construction sites, role play for career and family roles, tree removal, and explorations of

ethnicity and gender using simple objects such as dolls and scarves.

Beloglovsky and Daly's use of photos, explicit accounts of learning experiences, text organization, and language choices result in a highly accessible book on an often inaccessible topic for students in early-childhood education courses and novice teachers. The book's contents truly deliver on its title as the theories are made visible due to the great lengths taken by the authors to present clear headings for each section and theorist, provide numerous color photos of learning activities, and make clear, concise language choices. Perhaps the most useful parts of the book are the "Your Turn" sections following the exploration of each theorist, in which a photo and record of a learning event are provided with reflection/guiding questions for readers to consider, not only related to the event described but to readers' past experiences or future plans for guiding student learning.

The book is by no means flawless, however, with limitations in three areas: selection of theorists, little acknowledgement of academic learning, and the use of examples from only one site. Readers may question the inclusion of lesser-known, anti-bias education proponent Louise Derman-Sparks to the exclusion of more prominent contributors, such as innovator Maria Montessori or Friederich Froebel, who coined the term *kindergarten*. Also, although photos and anecdotes clearly show children engaged in language, math, and science experiences, much less attention is given in the text to academic outcomes the children achieved or the process by which parents come to see and know the academic side of the children's experiences. A final limitation is the taking of all examples from one family-run, home-based provider; seeing examples from multiple places with a wider variety of children and teachers would have provided readers with a more extensive, diverse picture of the theories in action.

Despite the gaps one might find in the book, Beloglovsky and Daly successfully provide a supplemental text useful to novice educators, child care providers, and parents. The text is particularly appropriate for a theory-based or foundation course for novice educators or as a refresher text to be used during a methods or unit-construction practicum. *Early Learning Theories Made Visible* would be an excellent resource for home or private child care providers as a professional learning tool, especially in reflecting on personal practice in light of the theories presented and in response to guiding questions found throughout the book. Understanding the purpose of specific learning activities and materials is also made easier by reading the sample lessons and child-teacher interactions and by viewing the color photos illustrating each theory. A third, less obvious, group who could benefit from reading Beloglovsky and Daly's work is parents. The text provides a variety of perspectives parents may consider when selecting a child care provider or in evaluating an existing provider's care and learning guidance relative to the family's expectations and beliefs about the ways children's bodies and minds develop. Overall, the text provides a useful resource, making complex ideas both accessible and visually appealing.



**Angie Quinn** is Director of Instruction at Pontotoc City School District in Mississippi. Currently completing doctoral work at The University of Mississippi, Quinn is a member of Alpha Psi Chapter in Zeta State Organization (MS) and is serving on the *DKG Bulletin* editorial board, 2012-2016.

# Exploring Diversity and Professionalism with Preservice Teachers using Film Clips as Prompts

By Kim Holdbrooks Townsel

---

*In order to explore what meanings preservice teachers ascribed to diversity and professionalism, the researcher in this qualitative case study used film clips to prompt reflection and discussion. The participants were six preservice teachers who provided written reflections about the two educational topics before the film clips were viewed, wrote reflections after viewing each film clip, participated in a focus-group interview, and completed final written reflections after the focus group. Additionally, all participants contributed in private follow-up interviews. Data analysis suggested using film clips as prompts for reflection and discussion on diversity and professionalism in a safe environment aided in the development of the preservice teachers' understanding of the concepts.*

---

*Diversity and professionalism are much used terms in teacher education. However, an overarching missing piece from the literature is information about the beliefs that preservice teachers have about these two concepts. In this case study, I sought to explore the meanings that preservice teachers held for diversity and professionalism and any modifications made to their beliefs as a result of their watching, reflecting on, and discussing responses to three film clips from biopic movies about teachers. In particular, a safe environment in which participants could express their views freely was ensured. The unit of analysis was data provided by six preservice teachers at a public university in the southeastern United States.*

## **Diversity and Professionalism**

The importance of diversity and professionalism are professed by various organizations; however, little consensus exists regarding the meaning of these concepts. Researchers indicated that diversity encompasses family indicators such as race, ethnicity, home language, religion, culture, socioeconomic level, and parental status, as well as personal indicators such as gender, age, physical abilities and qualities, exceptionalities, giftedness, gender expression, learning styles, and sexual orientation (Alabama Quality Teaching Standards, 2007; Banning, 2013; Council for the Accreditation of Educator Preparation [CAEP], 2013). No matter the definition of the term, preservice teachers must develop appropriate instruction and demonstrate appropriate communication in relation to diversity (Alabama Quality Teaching Standards, 2007; CAEP, 2013).

Qualities associated with professionalism also vary. Researchers have cited such



qualities and factors as classroom disposition and demeanor, communication, ethical conduct, shared responsibility for student achievement, life-long learning, professional development, reflection, high-quality practice, teaching styles, collaboration, learning, monitoring student achievement, content knowledge, ethics, and leadership (Alabama Quality Teaching Standards, 2007; Cary & Reifel, 2005; Interstate Teacher Assessment and Support Consortium [InTASC], 2013; Jacobs, 2013; National Board for Professional Teaching Standards, 2002; Raimo, Devlin-Scherer, & Zinicola, 2002). Due to the lack of agreement from academics and agencies, as well as the influences from media and personal experiences, I wondered if there might be an ambiguity about what preservice teachers believe about diversity and professionalism.

Nevertheless, diversity and professionalism are common standards in which both preservice teachers and educators in teacher-preparation programs must prove competencies in order to become accredited (California Commission on Teacher Credentialing, 2007). Indeed, the InTASC Model Standards and Learning Progressions for Teachers (2013) provides a cross-referenced chart of interfacing themes that they encourage personnel in teacher-education programs to address; these themes include diversity and professionalism. The variances in the definitions of and expectations of competence for diversity and professionalism prompted me to conduct this study to explore what meanings preservice teachers might provide to these key concepts. Traditional ways to explore meanings have used case studies, readings, and papers. However, in this study, I employed film clips to provide visual representations of diversity and professionalism.

### Film Pedagogy

The use of film as formal pedagogy is not a new idea. In the 1955 film *Blackboard Jungle*, the film character Richard Dadier used film as a teaching strategy for his students, which reached them when traditional texts failed to do so (Leopard, 2007). Researchers have noted the usefulness of film for teaching in college classrooms (Bluestone, 2000; Shaw & Nederhouser, 2005). Instructors are encouraged to integrate use of film into the classroom to supplement traditional reading of texts (Wicks, 1983). Additionally, film pedagogy has been encouraged for and used in teacher-preparation courses (Beyerbach, 2005; Dalton & Liner, 2008; Fontaine, 2010a; Ng & Tan, 2006; Pimentel, 2010; Rorrer & Furr, 2009; Trier, 2000, 2001). Bluestone (2000) stated, "The use of films may allow students to enter the worldview of characters, thus identifying with their struggles. That may stimulate students to think more fully about the material and to use their experiences in considering the concepts presented" (p. 144). I maintain that the use of film clips provides a powerful way for educators in teacher-training programs to present examples of diversity and professionalism and engage educators in exploring deeper meanings.

Educators in teacher-education programs may use films to supplement coursework and field experiences, to serve as vicarious lab experiences, and to examine potential classroom situations (National Council for Accreditation of Teacher Education [NCATE], 2010;



**Dr. Kim Holdbrooks Townsel, NBCT**, is an assistant professor in the College of Education and Professional Studies at Jacksonville State University, Alabama. Townsel chairs the Career and Technical Education (CTE) Teacher Preparation Program and teaches both CTE courses and Family and Consumer Science courses. She serves as communications chair in Alpha Iota Chapter in Beta State Organization (AL) and was a recipient of the Norma Bristow International Scholarship. The research presented in this article was supported by The Delta Kappa Gamma Society International, DKG Alabama State Organization, and Golden Key International. [ktownsel@jsu.edu](mailto:ktownsel@jsu.edu)

Ryan & Townsend, 2012). In support of film pedagogy for teacher preparation, NCATE (2010) stated,

Equally important are much needed laboratory experiences embedded throughout the preparation program. Laboratory experiences provide prospective teachers opportunities to learn through online and video demonstrations, analyzing case studies representing both exemplary practice and common dilemmas, and participating in peer and micro-teaching. Such experiences offer the opportunity to analyze a virtual student's pattern of behavior, or engage candidates in the life of a virtual school, calling upon the candidates to investigate and make decisions, and to see the consequences of those decisions. (p. 10)

The use of film clips that constitute "online and video demonstrations" and "video vignettes" is one way to explore such virtual case studies and lab experiences while the preservice teachers are in the teacher-education classroom, and digital images are identified as "promising practices" (NCATE, 2010, p. 13).

Diversity has been studied using film pedagogy by researchers (Fontaine, 2010b; Leopard, 2007; Martin & Atwater, 1992). Diversity has also been explored in teacher-preparation programs by instructors who used film pedagogy (Trier, 2000, 2007). Likewise, professionalism has been studied using film pedagogy in teacher preparation (Cary & Reifell, 2005; Genor & Schulte, 2002; Kaskaya et al., 2011; Ng & Tan, 2006). What the literature lacked was a study using film clips that demonstrated interactions between teachers and students as prompts to study both diversity and professionalism in a focused manner.

## Methodology

The primary research question was "What understandings about diversity and professionalism do preservice teachers derive from clips from biopic films featuring teachers and students interacting in the classroom?" This qualitative case study allowed preservice teachers to view film clips as a means to provoke discussion and reflection in a safe environment—i.e., one in which they were able to express themselves freely—to allow for critical analysis on the issues of diversity and professionalism. As previously stated, the importance of diversity and professionalism are established by various organizations. However, preservice educators' perspectives of diversity and professionalism may be limited to those derived from personal experiences they had as elementary, secondary, and college classroom students. Using film clips from biopic movies that show teachers in classroom action can provide vicarious experiences for preservice educators. Accordingly, this approach provides an opportunity for them to identify teacher behaviors related to diversity and professionalism from persons who are not their teachers. The use of film clips can thus provide a focused, ethical, and safe means of provoking discussion and reflection.

The conceptual framework for the study was film pedagogy. The unit of analysis was data provided by six preservice teachers in a teacher-education program at a public university in the southeastern United States. Limitations of this study included the small sample ( $N = 6$ ) and the geographical containment. Additional limitations included the lack of diversity of race and gender in the participants; all six self-identified as Caucasian females. Each participant chose her own pseudonym that was unknown to the other participants; those pseudonyms are used in this writing.

The research involved collecting and analyzing data that preservice educators provided from their shared experience of viewing the film clips: written reflections, a focus group, and follow-up interviews. At the beginning of the experience, participants chose their own

seating. Response packets that provided spaces for each written reflection were provided for each participant. To begin, participants provided a written statement of their meanings of diversity and professionalism. The first film clip was shown, and participants wrote their reflections about diversity and professionalism in response to the clip. This procedure was repeated for each clip. Then the participants moved to the focus group area and responded to prompts read by the researcher. The focus group was recorded with several video cameras and laptops. After the focus group, the participants returned to their original seats and wrote a final reflection. Within 2 weeks, all participants completed follow-up interviews. Four participants returned to the site for in-person interviews that were recorded by two electronic devices, and two participants for whom travel was a hindrance provided emailed responses to the follow-up interview prompts.

To improve reliability for the actual study, I conducted a pilot study with different participants that provided insights on improving the procedures: to remove a lengthy survey component and retain the written reflections and focus group. The pilot-study data analysis presented similar themes as this qualitative study, thus providing a measure of reliability. Validity measures for the study included having the researcher present during all times of data collection, which insured that the data collected were actually created by the participants, and member checking (Creswell, 2007; Marshall & Rossman, 2011), in which the participants had opportunities to provide reactions and feedback and to offer any corrections to the researchers' writing.

To provide the reader with context as related to the clips, they are described here. Each of the three clips from biopic films showed teachers interacting with students in their classrooms. *The Marva Collins Story* clip shown was the DVD chapter titled "The Merchants of Venice" (Holzgang, 1981). The clip begins at 1:30 and ends at 1:35, for a total of 5 minutes. The clip shows Marva Collins, an African-American teacher in a classic suit, as she leads African-American students in a lively lesson on *The Merchants of Venice*, incorporating a variety of academic subjects, demonstrating individualized instruction, and going on a field trip. *The Dangerous Minds* clip shown was the chapter titled "Choices" (Foster et al., 1995). The clip begins at 46:48 and ends at 51:48, for a total of 5 minutes. The clip shows LouAnne Johnson, a Caucasian teacher in casual attire, teaching poetry to a group of mixed-race students who are angry with her for a previous home visit to a classmate. Johnson addresses the emotional climate, allows the students to express themselves with street language, and then turns the lesson around using the students' emotions and goals. *The Ron Clark Story* clip shown was the chapter titled "The Presidents' Rap" (Brockway et al., 2006). The clip begins at 47:53 and ends at 52:29, for a total of 4 minutes and 36 seconds. In the clip, Clark, a Caucasian teacher in a shirt and tie, adapts his history lesson when his mixed-race students fail an exam; Clark incorporates the content into a rap song and engages the students. The students learn the content, and Clark rewards the students' successes and then deals with a student's misconduct.

### **Data Analysis**

Data came from the hard-copy response packets that were used by the participants to write their reflections, the digital recordings of the focus group and the in-person follow-up interviews, and the e-mailed responses from two participants for their follow-up interviews. I transcribed all digital recordings, using multiple recorded sources for each group and interview. The use of more than one digital recording source provided security against technological failures and fostered reliability of data. Repeated exposures to the digital recordings during transcriptions resulted in my being deeply immersed in the data. The

written reflections were extensively read. From the transcriptions and written reflections, the participants' responses were imported into a spreadsheet that resulted in 71 pages of data to code on a primary basis. The primary codes resulted in responses grouped into similar concepts. This grouping provided a method of coding, which was repeated three times in order to find emergent themes. For one example, during the written reflections on professionalism prior to the film viewings and focus group, participants provided responses that included concepts related to dress, appearance, carriage, demeanor, speech, and language—in other words, indicators of acknowledgment of personal characteristics. From the follow-up interviews, comments about professionalism that the participants provided included meeting students' needs, being responsible for student learning, respecting students, doing what it took to reach students; such responses indicated a movement to a focus on action and student achievement.

## Results

I conducted repeated readings and coding of the data (Creswell, 2009; Merriam, 2002; Saldaña, 2009), and three themes emerged in response to the primary research question: "What understandings about diversity and professionalism are derived from clips from biopic films featuring teachers and students interacting in the classroom?" The three themes were (1) action after acknowledgment, (2) student achievement, and (3) shared vicarious experience with peers.

**Action after acknowledgment.** Preservice teachers acknowledged the concepts of diversity and professionalism in their initial writings. Reflections about both diversity and professionalism in the written data prior to the engagement with the film clips and the discussion focused on identifiers for the teacher. For example, preservice teachers in this study seemed conversant with the types of diversity in people but had not thought about diversity in teachers, in types of professionalism, in teaching methods in response to different populations, or in different ways to handle situations. During the experience, the preservice teachers moved from discussing professionalism through lenses of personal attributes to lenses of interactive attributes—less "being" and more "doing." In her follow-up interview, Rebecca stated, "Seeing those three movie clips . . . each was a different type of diversity. They were diverse learners, they were diverse classrooms, diverse economic situations, but they were also diverse teachers." In the focus group, Nicole noted, "You can still get down on their (the students') level and interact without losing that professionalism." The data from this study indicated that, through reflection and interaction with the examples of diversity and professionalism, preservice teachers moved from identification to preparation and action. In short, these six preservice teachers seemed to believe that, in regard to diversity and professionalism, effective teachers must not only recognize types of diversity and professionalism but must also take actions in order to promote student achievement or learning. It is one thing to recognize that one has diverse learners in a classroom, but the professional educator goes past acknowledgement and uses many different aspects of diversity for student success.

“ The participants were comfortable providing critical analysis of the teacher behaviors in the “reel life” film clips. ”

**Student achievement.** Before the film clip viewing and discussion, the participants wrote about teacher behaviors and indicators. After viewing the film clips, the participants wrote about the students and teacher-student interactions. The most frequent comments for their reflections on the film clips focused on teaching strategies, content delivery, encouragement, praise, enjoyment in learning, and communication. This indicated a move from considering what a teacher *is* to what a teacher *does*. During the focus group, the participants' comments focused on how diversity in students requires diversity in teaching methods and types of professionalism in order for students to be successful in learning. The final written reflection provided data from the participants that focused on how a teacher who acts like a professional will adapt to meet the needs of the students. The follow-up interviews reiterated the statements that professionalism is more than appearance and behavior and includes producing success with diverse students using diverse and sometimes untraditional approaches. For example, in her follow-up interview in regards to the Ron Clark clip, Lucy stated, "He reached his students and he really didn't do it, in my opinion, in a professional way. But he came to their level, though. He made sure students were learning. Sometimes it takes stepping outside of that box of what everyone thinks is normal to do what you need to do for each student to learn."

**Shared vicarious experience with peers.** Additionally, the preservice teachers expressed desires and appreciation for visuals of representations of concepts and discussions with peers. Pam stated,

I believe that if you use film clips to prompt one's reflections, you will receive honest feedback. This is because most people are more comfortable watching movie clips than watching their classmates reenact things that happened in movies. Once you take people back to their comfort place, watching film clips, they are more likely to give you honest reflections because people are more comfortable and open to exploring diversities in film clips.

In her follow-up interview, Sadie said, "...in a setting like this. . . . It was really eye-opening to watch something and then talk with a group of your peers." Most participants noted how the discussion about the film clips brought out perspectives they had not considered. This suggested the participants benefited from sharing experiences with their peer preservice teachers to identify actions needed for teacher development.

Specific to each film clip, the fast-action clip from *The Marva Collins Story* prompted written reflections from the participants that focused on the diversity of the students' ages and learning abilities, as well as Mrs. Collins' diverse teaching methods. In the focus group, Sadie noted, "I have never heard of Marva Collins. The way that she incorporated every single content into one lesson, I was kinda mind boggled by that." The confrontational situation in the *Dangerous Minds* clip prompted the participants to note how the teacher handled the conflict, looked at the bigger picture, and turned the situation into a connected learning experience. Lucy noted the conflict: "This film was a complete struggle with diversity in the classroom. The students had very strong views against the teacher, but she handled it very well considering the different backgrounds." The fun clip from *The Ron Clark Story* prompted the participants to share how professional teachers must think outside of the box when it comes to reaching and teaching students, as well as that professionals may have fun during teaching. Pam noted that Mr. Clark "did something fun but was professional" and that is was "important to realize you can be professional and fun as long as it doesn't cross the line."

## Summary

The use of discussion and reflection on teacher behaviors in a safe environment is recommended for preservice teachers. The participants were comfortable providing critical analysis of the teacher behaviors in the “reel life” film clips. In “real life,” preservice teachers may be reluctant to be critical of the behaviors of the teachers whom they observe or of their cooperating teachers; these teachers are likely to be in their geographical network of colleagues with whom they will interact as the preservice teachers progress in their careers. Additionally, cooperating teachers may assess preservice teachers, which may well affect the preservice teachers’ college grades; this factor may cause preservice teachers to avoid being critical. Although the opportunity to discuss the behaviors of “real teachers” in their teacher-education classrooms offers some sort of privacy, the discussion of the behaviors of “reel teachers” in their teacher-education classroom provides a safer environment; the “reel teachers” do not impact the preservice teachers’ evaluations or grades.

In conclusion, preservice teachers benefited from concrete and differing examples of diversity and professionalism in a classroom setting, as well as the time and a safe place in which to discuss their thoughts. This study suggests that preservice teachers sometimes learn best when teacher educators provide an experience, even if it is a vicarious one, as well as the place and space for reflection and peer discussion. Participants came to realize that diversity and professionalism take different forms. Diversity is “us,” not “them,” and professionalism in the classroom focuses on student achievement. The use of film pedagogy can provide a supportive tool for teacher education programs and courses, especially to areas that are limited by geography, time, and content delivery. The use of digitized clips of student and teacher interaction may provide ethical case studies or at least standardized points for starting discussion and reflection.

## References

- Alabama Quality Teaching Standards. (2007). *Alabama Learning Exchange*. Retrieved from [http://alex.state.al.us/leadership/alqts\\_full.pdf](http://alex.state.al.us/leadership/alqts_full.pdf)
- Banning, J. (2013). Reflections on field experiences related to diversity issues: Illinois State’s undergrad FCS teaching methods course. *Journal of Family & Consumer Sciences, 105*(4), 29-34.
- Beyerbach, B. (2005). The social foundations classroom: Themes in sixty years of teachers in film: Fast times, dangerous minds, stand on me. *Educational Studies, 37*(3), 267-285.
- Bluestone, C. (2000). Feature films as a teaching tool. *College Teaching, 48*(4), 141-146.
- Brockway, J., Burkons, H., Croke Page, F., Friend, B., Gilad, A., Izzicupo, S., & Jackson, P., (Executive Producers); Cox, T., McNeil, C., Ord, M., Randall, J. (Producers); & Haines, R. (Director). (2006). *The Ron Clark Story* [Motion picture]. CA and USA: Alberta Film Entertainment; Granada Entertainment; Johnson & Johnson Spotlight Presentations; and Magna Global Entertainment.
- California Commission on Teacher Credentialing. (2007). *Welcome to the Commission on Teacher Credentialing*. Retrieved from <http://www.ctc.ca.gov>
- Cary, L., & Reifel, S. (2005). Cinematic landscapes of teaching: Lessons from a narrative of classic film. *Action in Teacher Education, 27*(3), 95-109.
- Council for the Accreditation of Educator Preparation. (2013). *CAEP accreditation standards*. Washington, DC: Author.
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.
- Dalton, M., & Liner, L. (2008). *Teacher TV: Sixty years of teachers on television*. New York City, NY: Peter Lang.
- Fontaine, H. (2010a). An interdisciplinary proposal for employing film to release the imaginations of preservice teachers. *The Journal of Aesthetic Education, 44*(1), 58-69. doi: 10.1353/jae.0.0071

- Fontaine, H. (2010b). The power of film to educate and miseducate preservice teachers: A phenomenological analysis of Hidalgo and cultural representation of Muslims Post 9/11. *Multicultural Education*, 17(2), 37-43.
- Foster, L., Guinzburg, K., & Rabins, S. (Executive Producers); Bruckheimer, J., & Simpson, D. (Producers); Smith, J. (Director). (1995). *Dangerous minds* [Motion picture]. USA: Buena Vista Home Entertainment.
- Genor, M. A., & Schulte, A. (2002). Exploring race: Teacher educators bridge their personal and professional identities. *Multicultural Perspectives*, 4(3), 15-20.
- Holzgang, C. (Producer), & Levin, P. (Director). (1981). *The Marva Collins story* [Motion picture]. USA: Hallmark Hall of Fame Productions, NRW Features, & Warner Bros. Television.
- Interstate Teacher Assessment and Support Consortium. (2013). *INTASC model standards and learning progressions for teachers*. Washington, DC: The Council of Chief State School Officers' Interstate Teacher Assessment and Support Consortium. Retrieved from [http://www.ccsso.org/resources/programs/interstate\\_teacher\\_assessment\\_consortium\\_\(intasc\).html](http://www.ccsso.org/resources/programs/interstate_teacher_assessment_consortium_(intasc).html)
- Jacobs, N. (2013). Traditional teacher education still matters. *Phi Delta Kappan*, 94(7), 18-22.
- Kaskaya, A., Unlu, I., Akar, M., & Sagirli, M. (2011). The effect of school and teacher themed movies on preservice teachers' professional attitudes and perceived self-efficacy. *Educational Sciences: Theory and Practice*, 11(4), 1778-1783.
- Leopard, D. (2007). "Blackboard Jungle": The ethnographic narratives of education on film. *Cinema Journal*, 46(4), 24-44.
- Marshall, C., & Rossman, G. (2011). *Designing qualitative research*. Thousand Oaks, CA: Sage.
- Martin, H., & Atwater, M. (1992). The stages of ethnicity of preservice teachers and inservice personnel involved in multicultural education experiences. Ipswich, MA. (ERIC Document Reproduction Service No. ED 397203)
- Merriam, S. B. (2002). *Qualitative research in practice: Examples for discussion and analysis*. San Francisco, CA: Jossey-Bass.
- National Board for Professional Teaching Standards. (2002). *What teachers should know and be able to do*. Arlington, VA: Author. Retrieved from [http://www.nbpts.org/sites/default/files/what\\_teachers\\_should\\_know.pdf](http://www.nbpts.org/sites/default/files/what_teachers_should_know.pdf)
- National Council for Accreditation of Teacher Education. (2010). *Transforming teacher education through clinical practice: A national strategy to prepare effective teachers*. Washington, DC: Author.
- Ng, C., & Tan, C. (2006). Investigating Singapore preservice teachers' ill-structured problem-solving processes in an asynchronous online environment: Implications for reflective thinking. *New Horizons in Education*, 54, 1-15.
- Pimentel, C. (2010). Critical race talk in teacher education through movie analysis. *Multicultural Education*, 17(3), 51-56.
- Raimo, A., Devlin-Scherer, R., & Zinicola, D. (2002). Learning about teachers through film. *The Educational Forum*, 66(4), 314-323.
- Rorrer, A., & Furr, S. (2009). Using film as a multicultural awareness tool in teacher education. *Multicultural Perspectives*, 11(3), 162-168.
- Ryan, P. A., & Townsend, J. S. (2012). Promoting critical reflection in teacher education through popular media. *Action in Teacher Education*, 34(3), 239-248.
- Saldaña, J. (2009). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage.
- Shaw, C., & Nederhouser, D. (2005). Reel teachers: References for reflection for real teachers. *Action in Teacher Education*, 27(3), 85-94.
- Trier, J. (2000). *Using popular "school films" to engage student teachers in critical reflection*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA. (ED 444993).
- Trier, J. (2001). The cinematic representation of the personal and professional lives of teachers. *Teacher Education Quarterly*, 28(3), 127-142.
- Trier, J. (2007). Teaching theory through popular culture texts. *Teaching Education*, 18(2), 151-165.
- Wicks, U. (1983). Studying film as integrated text [Electronic version]. *Rhetoric Review*, 2(1), 51-62.

# Effects of Teaching in a Science Summer Camp on the Science Self-Efficacy of Preservice Teachers

By Bridget A. Franks, Sheryl L. McGlamery, and Kristin VanWyngaarden

---

*In this study, the authors explored the effects of a unique field experience—teaching science inquiry activities to predominantly African-American girls in a summer STEM camp—in conjunction with science and mathematics methods courses, taught in a shared time block, on the scores of preservice elementary teachers on the Science Teaching Efficacy Belief Instrument. They also explored the preservice teachers’ rankings of their course experiences with regard to science self-efficacy. Significant increases were observed in both Science Teaching Outcome Expectancy and Personal Science Teaching Efficacy Belief by the end of the session. With regard to influence on their self-efficacy, the preservice elementary teachers ranked the field experience highest, followed by the opportunity to perform inquiry labs in class and the opportunity to design their own inquiry labs.*

---

What kinds of experiences help preservice teachers to feel confident in their ability to teach science at the elementary level? The question is important for two reasons. First, elementary school experiences serve as children’s introduction to science and science exploration, so it is vital that elementary teachers be able to create positive science-learning outcomes. Second, such outcomes are unlikely if teachers hold negative attitudes about science or lack confidence in their ability to teach it. In this study, we explored the effects of a unique field experience—teaching science lessons in a summer science, technology, engineering, and math (STEM) camp for predominantly African-American girls—on the scores of preservice elementary teachers on the Science Teaching Efficacy Belief Instrument (STEBI-B). The field experience was a shared practicum for science and mathematics methods courses offered in a summer session. We also explored the preservice teachers’ rankings of their methods course experiences with regard to science self-efficacy.

## Perceptions of Science and Efficacy for Science Teaching

Preservice elementary teachers historically have negative perceptions regarding science education and science learning, as well as reduced understanding of scientific principles. Researchers have suggested such teachers often have had negative experiences while learning science and, as a result, may express a low level of interest in the subject or have misconceptions about its relevance to their lives (Bleicher & Lindgren, 2005; Watters & Ginns, 1995). This reduced level of scientific engagement can result in a lack of efficacy



about presenting science lessons (Bergman & Morphey, 2015).

Preservice elementary teachers exhibit lower efficacy ratings for science and mathematics than for other elementary content, such as language arts, possibly due to their lack of knowledge in the former subject areas (Buss, 2010). The combination of previous negative learning experiences and lack of knowledge can lead to negative emotions, attitudes, beliefs, and values, all of which may affect the teachers' ability to learn and, later, to teach mathematics and science (Cassel & Vincent, 2011; Yürük, 2011). The important task of creating positive science-learning outcomes for children that will serve as the foundation for science performance in later grades cannot be accomplished if elementary teachers hold negative attitudes toward science education.

Even when their early science experiences were negative, preservice teachers with appropriate training reported increased confidence about both their own learning of science and their future teaching of it. For example, in the context of a constructivist-based science methods course, Bleicher and Lindgren (2005) investigated preservice elementary teachers' perceptions of their ability to teach science. In focus groups, the participants discussed their confidence about teaching science. Only 20.5% perceived themselves as potentially being successful when teaching science material. More (32.5%) felt fearful about teaching science, and 20.5% felt disinterested. Four themes emerged from the focus group discussion. First was the ability to change one's mindset about science. Participants who viewed themselves as potentially successful were able to change their mindsets, while the other groups were not. Second, participants did not want to teach the same way they had been taught. Disinterested participants, for example, had found science boring when they were in school. Third, participants benefited from multiple exposures and practical experiences in science. Fourth, exploration was critical to participant engagement. Fearful participants in particular noted that exploration was critical to their understanding of



**Dr. Bridget A. Franks** is an assistant professor in the Department of Teacher Education at the University of Nebraska at Omaha. She teaches courses in Human Growth and Learning and Research Methods. She is a member of the Society for Research in Child Development. [bafranks@unomaha.edu](mailto:bafranks@unomaha.edu)



**Dr. Sheryl McGlamery** is a professor of Science Education and Co-Director in the Office of STEM Education at the University of Nebraska at Omaha. She is a past president of Omega Chapter in Rho State Organization (NE). [smcglamery@unomaha.edu](mailto:smcglamery@unomaha.edu)



**Kristin VanWynngaarden** recently completed the requirements for a master's degree in Speech/Language Pathology at the University of Nebraska at Omaha. She is a graduate assistant in the Office of STEM Education. [Kvanwynngaarden@unomaha.edu](mailto:Kvanwynngaarden@unomaha.edu)

science and helped motivate them to engage in the learning process. Following completion of the course, which used constructivist teaching methods to help them learn science content, participants in the study expressed significantly greater efficacy about teaching science.

Outcome expectancy refers to the belief that effective teaching affects students' learning positively, whereas self-efficacy refers to the belief in one's *own* ability to teach effectively (Bandura, 1993). Both are necessary if preservice teachers are to view science teaching with confidence. Bleicher (2006) explored both elements in a science-teaching methods course based on nurturing conceptual understanding and confidence; following the course, preservice teachers demonstrated significant increases in personal self-efficacy and outcome expectancy, as well as in understanding of basic earth science concepts. Bergman and Morphew (2015) found that a single semester science content course designed specifically for elementary preservice teachers and emphasizing not only content but also strategies for promoting inquiry-based learning resulted in significant increases in participants' self-efficacy and in their outcome expectancy for teaching science.

Practicing teachers may also benefit from experiences that reduce their negative perceptions about science. An intervention that combined explicit attention to attitudes with an inquiry-based learning approach (van Aalderen-Smeets & Walma van der Molen, 2015) resulted in significant improvements in self-efficacy beliefs about science teaching and enjoyment of science teaching, in decreased anxiety, and in increased levels of science teaching in the classroom with primary teachers who averaged 18 years of teaching experience.

### **Teacher Efficacy is Related to Teacher and Student Success**

The relationship between teacher efficacy and successful teaching outcomes has been widely studied. Teachers with higher self-efficacy have high expectations for their students, set more ambitious goals for them, and effect greater growth (Allinder, 1995). They also spend more class time on academic activities and focus less on discipline than do teachers with lower self-efficacy (Tschannen-Moran & Hoy, 2007). In contrast, teachers with negative attitudes toward science spend less time teaching science-related topics and are less able to stimulate a positive attitude towards science in their students (Jarvis & Pell, 2004; Osborne, Simon, & Collins, 2003). When practicing teachers gain confidence in their science teaching via professional development, their students achieve at higher levels (Lumpe, Czerniak, Haney, & Beltyukova, 2012).

Teacher efficacy is experienced both by individual teachers and by groups. In describing the concept of collective efficacy beliefs, Bandura (1997, p. 477) referred to them as a group's shared belief in its capacity to take action to produce specific levels of attainment. He noted that a faculty's collective efficacy about their ability to promote academic progress contributes significantly to their students' achievement levels (Bandura, 1993). Collective teacher efficacy consistently predicts student achievement in a variety of academic areas (Goddard, Hoy, & Woolfolk Hoy, 2000; Goddard, LoGerfo, & Hoy, 2004; Hoy, Sweetland, & Smith, 2002; Tschannen-Moran & Barr, 2004).

### **Increased Efficacy is Related to Use of More Effective Teaching Methods**

Teacher efficacy is related to the use of more effective instructional strategies to teach scientific principles. Teachers who exhibit high levels of efficacy often use more interactive teaching methods, and teachers who believe there is a direct correlation between their ability to teach a subject and their ability to motivate students also appear to use more

interactive teaching styles (Ross, 1992). Teachers with high efficacy ratings are more likely to use student-centered teaching methods, such as inquiry-based learning, as opposed to teacher-centered lessons, such as rote memorization (Anderson, Dragsted, Evans, & Sorensen, 2004; Appleton & Kindt, 2002; Hami, Czerniak, & Lumpe, 1996). This is important, because hands-on, activity-based science education is generally more effective than traditional, lecture-based courses (Hrepicet al., 2006).

Teachers with higher levels of self-efficacy often create more challenging activities for their students (Goddard, et al., 2004), while teachers with low efficacy use avoidance tactics. Unfortunately, elementary teachers are most likely to use avoidance tactics when they are teaching science content, as opposed to other subjects, which leads to decreased outcome expectancies for their students' understanding of scientific material (Leonard, Barnes-Johnson, Dantley, & Kimber, 2011).

### **Field Experiences and Science Efficacy**

Requiring a field experience in a science methods class is a common practice. Preservice teachers learn recommended science teaching methods and receive direct feedback about their own effectiveness in real classroom situations. Cannon and Scharmann (1996) observed higher teaching efficacy among elementary preservice teachers who had experiences in field placement classrooms than among those who did not, and a review of studies on the challenges faced by new science teachers by Davis, Petish, and Smithey (2006) concluded that field experiences not only contributed to understanding science instruction and teaching efficacy, but also helped preservice teachers learn to anticipate their students' ideas.

Swars and Dooley (2010) observed increased self-efficacy after the opportunity to work directly with children and teach them science activities and further observed that preservice teachers attributed their work with the children to the increase in their self-efficacy beliefs. This is particularly relevant to the present study because the field experience in Swars and Dooley's (2010) study involved working with children who were predominantly ethnic minorities (65% Hispanic, 20% African American, 8% Asian, 4% multiracial, 3% White) and nonnative English speakers. Efforts to address achievement gaps in science among ethnic minority students, particularly girls, have been a focus of interest among science education researchers for some time (Buxton, 2006; Carlone, Johnson, & Scott, 2015; Fraser-Abder, Atwater, & Lee, 2006); the field placement in the present study was designed specifically for ethnic minority girls.

In helping preservice teachers prepare to teach science effectively at the elementary level, particularly in urban environments with students from diverse backgrounds, three kinds of support appear to be crucial. Support for science-content knowledge, training in inquiry methods, and experience with real students are all needed to produce effective elementary science teachers who can engage students, particularly those from groups underrepresented in the sciences, in meaningful science activities. This study explored the effects of a science methods class that included all three kinds of support on preservice teachers' science self-efficacy.

### **Research Questions**

The university students who participated in this study were engaged in learning highly interactive, inquiry-based science teaching methods. Because practicing teachers with high self-efficacy are more likely to use such methods, we wanted to see if learning and practicing them, even in a 4-week summer class, would result in improved science self-

efficacy. Another reason for exploring self-efficacy in this context was that the practicum experience for the class took place in a summer camp designed specifically to empower girls and interest them in STEM careers. We thought it likely that the experience of providing at-risk girls with an encouraging atmosphere for doing science would have a positive impact on the preservice teachers' confidence as well.

A variety of issues related to inquiry-based pedagogy (some reported elsewhere) were explored with these students. In this article, we focus on our exploration of their expressed self-efficacy after taking a science methods class with a unique field placement setting. Self-efficacy was measured with the two subscales of the Science Teaching Efficacy Belief Instrument (STEBI-B), Science Teaching Outcome Expectancy and Personal Science Teaching Efficacy Belief (Enochs & Riggs, 1990), as well as by student rankings of class experiences. As such, our research questions were as follows:

1. How does the science methods class affect Science Teaching Outcome Expectancy scores for preservice teachers?
2. How does the science methods class affect Personal Science Teaching Efficacy Belief scores for preservice teachers?
3. How do preservice teachers rank their experiences in the science methods class with regard to their science self-efficacy?

Although it is possible that teaching science concepts to actual students for the first time could affect self-efficacy negatively for some students, our prediction was that the combination of training in inquiry-based science education with a unique field experience designed to be positive and supportive for at-risk girls would result in increases on both subscales of the STEBI-B for elementary education majors. We made no specific predictions about how our participants would rank their experiences in the science methods class.

### **The Summer School Experience**

Students in the study were all registered in TED 4340/4330, science and mathematics methods courses that integrated science and mathematics activities in a shared field experience and were taken during a summer term. All were elementary education majors who were due to student teach within two semesters of completing the courses.

### **The Field Experience**

Preservice teachers enrolled in TED 4340 were required to participate in a field experience that involved working with EUREKA-STEM!, a summer camp designed to promote STEM education. The camp is held yearly on the campus of a midsize urban university as part of a partnership between the university and *Omaha Girls, Inc.*, a community support program for girls. The majority of girls who participated in the program were from single-parent families with annual incomes below \$30,000. All attended inner-city schools at which the majority of students received free or reduced-cost meals, another indicator of poverty. Participants in the camp at the time of the study were 60 girls, ages 11-14; 4 were African (Somalian), 3 were Latina, 1 was Asian, and the remainder were African American.

The 4-week summer camp experience is designed to introduce at-risk female students to STEM education in a positive college setting. Topics for the camp included robotics (working with CEENBoTs), an introduction to programming and coding, financial literacy, physics, biology, chemistry, engineering, and mathematics. University faculty, staff, and graduate students planned and executed the summer program, which also included physical education and swimming. Science classes were part of the program, and each preservice

elementary teacher was required to teach a series of four science lessons to a small group of girls. Although these students were in middle school, their science-content knowledge was estimated to be 2-3 years below their grade levels due to achievement gaps. For example, based on the Nebraska State Accountability (NeSA) tests, only 37% of African-American students in Nebraska scored at a proficient level in science, compared with 70% for all students and 79% for White students (Nebraska Department of Education, 2014). As a consequence, the science curriculum utilized in the field experience was at 5th-6th grade level.

The preservice elementary teachers were divided into teams of three. Each team was assigned a thematic science topic and given four to six science lessons to adapt and teach to their small (2-3 students) group of middle-school girls. Each team set up their science lessons in a format using learning centers. The groups of girls rotated through the science centers, spending 30 minutes at each assigned center. The teams of preservice teachers were instructed to adapt the lessons to three 30-minute sessions and to expect to teach the lesson of the day three times, with each preservice teacher taking a turn in leading the lesson. The four teaching sessions, which took place over a period of 2 weeks, lasted 90 minutes each. The teacher candidates also turned in a written science lesson plan and science journal reflections after teaching each 90-minute session.

### **Other Class Assignments Used to Address Efficacy**

The preservice teachers were immersed in a science methods course designed to teach inquiry as a pedagogy to assist students in learning science. The components of the course and assignments are described below. Although inquiry pedagogy is not the focus of this article, it is necessary for the reader to recognize that, in order to be successful at teaching science, preservice elementary teachers must understand inquiry and its application to science teaching. Therefore, we were interested in which parts of the course influenced the preservice teachers most with regard to their science teaching efficacy.

We implemented seven class assignments to address efficacy:

1. ***What is Inquiry? (pre-assessment)***. An open-ended question was posed and preservice elementary teachers wrote about their understandings of inquiry-based science instruction.

2. ***Science Biography (self-report)***. Preservice elementary teachers reported on the courses they had completed in high school and college science and mathematics and described the types of learning experiences they had in these courses.

3. ***Faculty presentations***. Faculty gave presentations on inquiry-based teaching methods and engaged the preservice teachers in discussion questions about inquiry-based instruction in science.

4. ***Participation in Inquiry Labs (six labs total)***. Each week for the 4 weeks of the course, the preservice elementary teachers performed inquiry-based labs in class. Following the field experience, the in-class labs resumed.

5. ***Inquiry Reflection Paper***. After reading several articles on teaching science using inquiry, preservice teachers wrote a paper indicating their understanding of inquiry-based instruction. The paper was completed during the third week of class.

6. ***Field-based teaching of inquiry-based labs (structured level) in a college setting***. The preservice teachers taught inquiry-based science labs to middle-school students for 2 weeks, with a total of four lessons taught per preservice teacher.

7. ***Preservice elementary teachers constructed inquiry-based labs given only researchable questions (guided level)***. After the field experience and during the last week of the course,

preservice elementary teachers were given questions about science and asked to design an inquiry-based lab experiment for elementary age children to complete. They were expected to select the researchable question, phrase the question, identify the variables, and write the procedure for the experiment. Subsequently, they performed the experiment, gathered data, graphed their data, and reported their findings and conclusions.

### Participants

Participants were 27 undergraduate education students (2 males, 25 females), all elementary education majors, who were enrolled in a block-format science and mathematics methods course taken during a summer term. Participants were all Caucasian students at a medium-sized urban university in the midwestern United States. As described earlier, the field component of the courses involved working with primarily African-American female middle-school students who were enrolled in a summer STEM camp held on a university campus.

“ [F]ield experiences and other aspects of professional development do not have to be lengthy to have an impact on preservice teachers’ self-efficacy. ”

### Instrument

The preservice version of the Science Teaching Efficacy Belief Instrument (STEBI-B; Enochs & Riggs, 1990) was used to assess students’ self-efficacy regarding science teaching. This widely used instrument measures two subscales, Personal Science Teaching Efficacy Belief (PSTEB; 13 items) and Science Teaching Outcome Expectancy (STOE; 10 items). In a reexamination of the instrument’s reliability and validity, Bleicher (2004) established that the two subscales were homogenous, with factor loadings comparable to those reported by Enochs and Riggs (1990), and concluded that the basic integrity of the STOE and PSTEB scales was upheld, supporting the continued use of the instrument. Participants rate their beliefs on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each subscale contains both forward-phrased (“I will continually find better ways to teach science”) and reverse-phrased (“I will not be very effective in monitoring science experiments”) items.

### Procedure

The STEBI-B was administered to all students on the first day of class, before any content was covered and after introductions were completed. Students then participated in the field experience and other efficacy-related course assignments as described above. At the end of the 4-week session, the posttest administration of STEBI-B occurred on the last day of class, following the class session but before the last exam.

During the fourth week of class, the participants were asked to rank each of the seven components of the course (listed above) in terms of its influence on their self-efficacy in teaching science. Because all elementary education majors are required to take this methods class, random assignment to this class or to some other methods class was not possible; therefore, a quasi-experimental design was used, comparing self-efficacy scores between pretest and posttest.

## Results

We first calculated the internal reliability of the STEBI-B instrument as a whole for our sample, using the pretest scores. The Cronbach's alpha for the measure was .80, indicating a good level of instrument reliability. Paired samples *t* tests were then used to evaluate differences between pretest and posttest scores for the two subscales of the STEBI-B, STOE and PSTEB. The Table illustrates the results observed for the two subscales. On the STOE subscale, the difference between pretest and posttest scores was statistically significant,  $t(26) = 2.12, p < .05$ . On the PSTEB subscale, the difference between pretest and posttest scores was also significant,  $t(26) = 3.18, p < .01$ . Using an  $\eta^2$  formula for a paired samples *t* test, a large effect size of .15 was obtained for the STOE subscale and an even larger effect size of .28 was obtained for the PSTEB subscale (Cohen, 1988).

Table

*Paired Samples t-Tests with Pretest and Posttest Scores on Science Teaching Outcome Expectancy and Personal Science Teaching Efficacy Belief Subscales of the STEBI-B*

Subscale	N	Mean, SD Pre	Mean, SD Post	<i>t</i> (26)	<i>p</i>	Effect size*
STOE	27	36.48 (3.30)	37.85 (3.46)	2.12	< .05	.15
PSTEB	27	47.93 (6.60)	51.33 (4.58)	3.18	< .01	.28

\* $\eta^2$  values: .01 = small effect, .06 = moderate effect, .14 = large effect (Cohen, 1988)

In addition to the administration of the STEBI-B, the preservice elementary teachers were asked to rank the course components based on the influence each had on their efficacy about teaching science. The field experience was ranked highest, with 98.2% of the preservice teachers indicating it was the most useful aspect of the course in influencing their self-efficacy. The second most influential component of the course was the opportunity to do inquiry labs in class, with 94.7% of preservice teachers ranking these labs as the second most influential component. The third most influential component of the course was the opportunity to design inquiry labs when given a science question to explore; 90.4% of preservice teachers ranked it third overall.

## Discussion

As our results illustrate, field experiences and other aspects of professional development do not have to be lengthy to have an impact on preservice teachers' self-efficacy. Even after a 4-week summer course that involved only 360 total minutes of student contact, the teacher candidates in our study showed marked improvement in both outcome expectancies and personal self-efficacy regarding science education. Thus, our prediction about the positive effects of the course on students' self-efficacy was supported. Such effects have been observed with even briefer professional development opportunities for practicing teachers (Nadelson et al., 2013), but the participants in our study had less training and far less experience with children than practicing teachers do. What components of the summer experience are most likely to be responsible for such strong gains in self-efficacy? The students' own rankings provided the best answers to this question.

The field experience was ranked as the most useful experience for the preservice elementary teachers with regard to self-efficacy. Teaching science to at-risk middle-school girls provided an opportunity for the preservice teachers to face and work through their

fears and concerns about teaching science. Working with students from a variety of different cultures and ethnic backgrounds may have offered these Caucasian teacher candidates some challenges to their beliefs about teaching science to diverse groups. But the opportunity to experience authentic science teaching using inquiry methods, with the training and support to do so successfully, clearly helped them to overcome their doubts, not only about their personal self-efficacy, but also about their beliefs that the effective teaching of science can influence student learning. Swars and Dooley (2010) reported similar results with preservice teachers who taught science to ethnic minority and nonnative English-speaking children. The preservice teachers in their study demonstrated increased personal science teaching self-efficacy following the opportunity to work directly with children on science activities, and they attributed their work with the children to the increase in their self-efficacy beliefs.

By our participants' rankings, the second most useful component of the course with regard to efficacy was the opportunity to perform inquiry-based science labs. Preservice teachers were given multiple labs to complete and analyzed the results. They first completed the labs as an elementary school student would experience them and then reflected on the content and pedagogy used when completing the lab. Thus, they had the opportunity not only to practice inquiry themselves, but also to review content they will need to teach science in the elementary context.

The third most useful aspect of the course chosen by the preservice teachers was the opportunity to design inquiry labs. After the field experience, preservice elementary teachers were given questions about science and asked to design an inquiry-based lab experiment for elementary age children to complete. They were required to select the researchable question, phrase the question, identify the variables, and write the procedure for the experiment. Subsequently, they performed the experiment, gathered data, graphed their data, and reported their findings and conclusions. In completing this last phase of the course, the preservice teachers, who had already used inquiry-based science labs to teach children science, were further challenged to explore inquiry from the design perspective. The act of designing their own inquiry lab also proved to the preservice teachers that they were indeed capable of teaching science to children, and they also understood at a higher level the nature and purpose of science inquiry.

Most science methods classes include field experiences in regular classrooms. Our results suggest that this is not the only environment possible for building the confidence of elementary education majors about their ability to teach science. A field experience that provides exposure to students who are very different in ethnicity and culture from teacher candidates, combined with strong support for learning science content and designing inquiry-based activities, can also result in improved self-efficacy.

As noted earlier, preservice elementary teachers exhibit lower efficacy ratings for science and mathematics than for other elementary content (Buss, 2010). Children are unlikely to develop a strong interest in science learning if their teachers dislike the topic or feel incompetent at teaching it. Therefore, finding ways to improve preservice teachers' attitudes and confidence early in their training is crucial to providing an appropriate introduction to science exploration for elementary students. This is especially true for elementary students from minority groups underrepresented in science and for those at risk for achievement gaps due to poverty. The program described here illustrates one unique way to bring about such an effect.



## References

- Allinder, R. M. (1994). The relationship between efficacy and the instructional practices of special education teachers and consultants. *Teacher Education and Special Education, 17*, 86-95.
- Anderson, A. M., Dragsted, S., Evans, R. H., & Sorensen, H. (2004). The relationship between changes in teachers' self-efficacy beliefs and the science teaching environment of Danish first-year elementary teachers. *Journal of Science Teacher Education, 15*, 25-38.
- Appleton, K., & Kindt, I. (2002). Beginning elementary teachers' development as teachers of science. *Journal of Science Education, 21*, 155-168.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York City, NY: W. H. Freeman.
- Bergman, D., & Morpew, J. (2015). Effects of a science content course on elementary preservice teachers' self-efficacy of teaching science. *Journal of College Science Teaching, 44*(3), 73-81.
- Bleicher, R. E. (2004). Revisiting the STEBI-B: Measuring self-efficacy in preservice elementary teachers. *School Science and Mathematics, 104*, 383-391.
- Bleicher, R. E. (2006). Nurturing confidence in preservice elementary science teachers. *Journal of Science Teacher Education, 17*, 165-187.
- Bleicher, R., & Lindgren, J. (2005). Success in science learning and preservice science teaching self-efficacy. *Journal of Science Teacher Education, 16*(3), 205-225.
- Buss, R. R. (2010). Efficacy for teaching elementary science and mathematics compared to other content. *School Science and Mathematics, 110*(6), 290-297.
- Buxton, C. A. (2006). Creating contextually authentic science in a "low-performing" urban elementary school. *Journal of Research in Science Teaching, 43*(7), 695-721.
- Cannon, J. R., & Scharmann, L. C. (1996). Influence of cooperative early field experience on preservice elementary teachers' science self-efficacy. *Science Education, 80*, 419-436.
- Carlone, H. B., Johnson, A., & Scott, C. M. (2015). Agency amidst formidable structures: How girls perform gender in science class. *Journal of Research in Science Teaching, 52*(4), 474-488.
- Cassel, D., & Vincent, D. (2011). Metaphors reveal preservice elementary teachers' view of mathematics and science teaching. *School Science and Mathematics, 111*(7), 319-324.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Davis, E. A., Petish, D., & Smithey, J. (2006). Challenges new science teachers face. *Review of Educational Research, 76*, 607-652.
- Enochs, L. G., & Riggs, I. M. (1990). Further development of an elementary science teaching efficacy belief instrument: A preservice elementary scale. *School Science and Mathematics, 90*(8), 694-706.
- Fraser-Abder, P., Atwater, M., & Lee, O. (2006). Research in urban science education: An essential journey. *Journal of Research in Science Education, 43*(7), 599-606.
- Goddard, R. D., Hoy, W. K., & Woolfolk Hoy, A. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal, 37*(2), 479-507.
- Goddard, R. D., LoGerfo, L., & Hoy, W. K. (2004). High school accountability: The role of perceived collective efficacy. *Educational Policy, 18*(3), 403-425.
- Hami, J., Czerniak, C., & Lumpe, A. (1996). Teacher beliefs and intentions regarding the implementation of science education reform strands. *Journal of Research in Science Teaching, 33*, 971-993.
- Hoy, W. K., Sweetland, S. R., & Smith, P. A. (2002). Toward an organizational model of achievement in high schools: The significance of collective efficacy. *Educational Administration Quarterly, 38*, 77-93.
- Hrepic, Z., Adams, P., Zeller, J., Talbott, N., Taggart, G., & Young, L. (2006). Developing an inquiry-based physical science course for preservice elementary teachers. In P. Heron, L. McCullough, & J. Marc (Eds.), *Physics Education Research Conference* (pp. 121-124). Melville, NY: American Institute of Physics.
- Jarvis, T., & Pell, A. (2004). Primary teachers' changing attitudes and cognition during a two-year science inservice program and their effects on pupils. *International Journal of Science Education, 26*, 1787-1811.

- Leonard, J., Barnes-Johnson, J., Dantley, S. J., & Kimber, C. (2011). Teaching science inquiry in urban contexts: The role of elementary preservice teachers' beliefs. *Urban Review*, 43(1), 124-150.
- Lumpe, A. T., Czerniak, C. M., Haney, J. J., & Beltyukova, S. (2012). Beliefs about teaching science: The relationship between elementary teachers' participation in professional development and student achievement. *International Journal of Science Education*, 34, 153-166.
- Nadelson, L., Callahan, J., Pyke, P., Hay, A., Dance, M., & Pfister, J. (2013). Teacher STEM perception and preparation: Inquiry-based STEM professional development for elementary teachers. *The Journal of Educational Research*, 106, 157-168.
- Nebraska Department of Education. (2014). *Official government website, State of Nebraska*. Retrieved from <http://reportcard.education.ne.gov/>
- Osborne, J., Simon, S., & Collins, S. (2003). Attitudes towards science: A review of the literature and its implications. *International Journal of Science Education*, 25, 1049-1079.
- Ross, J. A. (1992). Teacher efficacy and the effects of coaching on student achievement. *Canadian Journal of Education*, 17(1), 51-65.
- Swars, S., & Dooley, C. (2010). Changes in teaching efficacy during a professional school-based science methods course. *School Science and Mathematics*, 110(4), 193-202.
- Tschannen-Moran, M., & Barr, M. (2004). Fostering student learning: The relationship of collective teacher efficacy and student achievement. *Leadership and Policy in Schools*, 3(3), 189-209.
- Tschannen-Moran, M., & Hoy, A. W. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education*, 23, 944-956.
- van Aalderen-Smeets, S. I., & Walma van der Molen, J. H. (2015). Improving primary teachers' attitudes toward science by attitude-focused professional development. *Journal of Research in Science Teaching*, 52(5), 710-734.
- Watters, J., & Ginns, I. (1995). *Origins of, and changes in preservice teachers' science teaching self-efficacy*. Paper presented at the Annual Meeting of National Association for Research in Science Teaching, San Francisco, CA (ERIC ED 383 570).
- Yürük, N. (2011). The predictors of pre-service elementary teachers' anxiety about teaching science. *Journal of Baltic Science Education*, 10(1), 17-26.

# ***SignUpGenius: The Instructors' Friend***

By Jude A. Matyo-Cepero and Linda K. Lilienthal

---

**S**ignUpGenius is a free Web tool designed to alleviate the stress of organizing meetings. The application has many uses. College instructors can use this program for study groups, student and instructor meetings, and advising. PK-12 teachers will also find many applications for this program.

---

The art of communication has changed dramatically on university campuses. In this digital age, students and instructors are constantly online, using e-mail, participating in online courses—the list is endless. It is important for students to connect with their instructors, and instructors also need an effective way to connect with their students to provide them with the guidance and support they may need. Efficiency and organization are paramount, and, without them, scheduling can be a nightmarish experience for all involved.

## **Background of *SignUpGenius***

To combat the scheduling nightmare, we use a free Web tool called *SignUpGenius* ([www.signupgenius.com](http://www.signupgenius.com)). The tool was introduced in 2008 by founders Dan Rutledge and Mike Vadini. We contacted a company representative on the Web site who reported that *SignUpGenius* enables more than 7 million unique visitors per month to sign up for tasks online (T. Clark, personal communication, August 30, 2015). According to the *SignUpGenius* Web site (August 2015), the product won the Communicator Award from the Academy of Interactive and Visual Arts (AIVA) for the third year in a row, and even more impressive was that *SignUpGenius* won this prestigious award over 6,000 other entrants. The award is from the leading international program for creative excellence in the communication field (AIVA, August 2015).

## **How to Use It**

*SignUpGenius* is easy to use, even for non-techies. Visit the Web site at [www.signupgenius.com](http://www.signupgenius.com) to join; simply provide an e-mail address and a password.

1) Go to the *General Details* tab. To create a sign-up page, click on the *Create a SignUp* button to begin. This page allows the scheduler to create a new group, a title, and a description of a group page. Press *Continue* throughout the process to move from one tab to the next.

2) *Themes* (designs) offer many selections, such as seasons, school, basic black and white, and more.

3) *Dates/Times* is where the choices begin! Will this be a one-time event, possibly for an advising appointment, or a recurring event, such as a study group? Will the scheduler need to include time slots or customize the dates and times? The choice is up to the user!

4) *Slots* allows the scheduler to choose, for example, a specific date with multiple slots or times.

5) *Settings* allows the scheduler to provide participants with the exact information they will need in order to sign up for the event. The scheduler receives notification by e-mail when people sign up, edit, or delete their sign-up slot.

6) *Preview* allows the scheduler to continue to edit the work or to proceed to the final tab.

7) *Invite/Publish* allows the scheduler to enter the e-mail addresses of potential participants manually or import them from an address book. The scheduler can also custom edit the e-mail text before sending it to potential participants. An important component of this tab is that it allows the scheduler to save the work in a draft form to give it one more review or to send it out to potential participants immediately.

Potential participants can respond to the invitation from *SignUpGenius* at their convenience because it is an asynchronous response format. The *SignUpGenius* program sends an e-mail to notify the scheduler of any acceptances, changes, or cancellations. This provides flexibility for both the potential participants and the scheduler.

### How We Use It

We have found *SignUpGenius* to be an extremely useful tool for scheduling meetings and appointment times with our advisees, student learners, and colleagues, using the group Sign-Up pages accessible to all. Once the initial Sign-Up group is created, it can be easily modified with new dates and times. This allows the main sign-in address information to remain the same. Another benefit of using *SignUpGenius* is the program-notification component. We receive e-mails letting us know when our students make an appointment or change (or cancel) an appointment. The reverse is also true, as instructors are able to modify dates or times for scheduled appointments, and the program then notifies students of the changes.

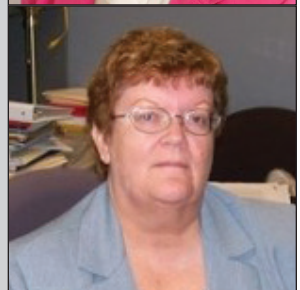
### How PK-12 Teachers Can Use It

Teachers working in the PK-12 grades will also find *SignUpGenius* very useful. The two major uses of this Web site for school personnel include scheduling faculty, staff, student,

**Dr. Jude Matyo-Cepero** is an assistant professor of Teacher Education/Special Education/Gifted Education at the University of Nebraska Kearney. She is vice president of Alpha Kappa Chapter in Rho State Organization (NE). [ceperoja@unk.edu](mailto:ceperoja@unk.edu)



**Dr. Linda K. Lilienthal** is an assistant professor of Teacher Education/Literacy at the University of Nebraska Kearney. Lilienthal will be initiated into Alpha Kappa Chapter in Rho State Organization (NE). [lilienthallk@unk.edu](mailto:lilienthallk@unk.edu)



or parent meetings and organizing volunteers to serve on committees or participate in events. The uses for this site are limited only by one's imagination.

### **Conclusion**

*SignUpGenius* is a free program at the basic level, which is what we use and will be ample for many school applications. Other options may be added for a price. The *SignUpGenius* Web site offers some useful suggestions for college instructors, such as using the program for scheduling office hours and coordinating study groups (<http://www.signupgenius.com/colleges/>). Our idea of using the *SignUpGenius* Web site for scheduling advising appointments is a unique use of the free program and is an additional step beyond the *SignUpGenius* suggested product uses. Using the program eliminates numerous e-mail exchanges and phone calls between our students and us. Additional suggestions on the Web site include uses for *Family Sign Ups*, *Sports Sign Ups*, *School Sign Ups*, *Nonprofit Sign Ups*, *Clubs and Groups Sign Ups*, among others. We would suggest, when using *SignUpGenius* for the first time, that one schedule ample time for learning the program. It is not difficult to use, but there is a learning curve. We are confident that *SignUpGenius* has many other applications that users will find beneficial.

### **References**

Academy of Interactive & Visual Arts. (2015). *About AIVA*. Retrieved from [http://aiva.org/awards\\_info/](http://aiva.org/awards_info/)

SignUpGenius. (2015). *Home page*. Retrieved from <http://www.SignUpGenius.com>

Additional information about SignUpGenius is available from

Dotto, S. (2013, Jan. 4). Dottotech: Sign Up Genius. Retrieved from <https://www.youtube.com/watch?v=9OQo4mgHIxM>

# Bulletin Submission Guidelines

Submissions from members will be accepted for review provided that:

- ✦ The submission is not being considered concurrently in whole or substantial part by another publisher.
- ✦ The *Bulletin* has exclusive option of possible publication for a period of 6 months following receipt of the submission.
- ✦ The author assumes responsibility for publication clearance in the event the submission was presented at a professional meeting or is the direct product of a project financed by a funding agency.
- ✦ Authors are responsible for accurately citing all quoted and bibliographic materials and for obtaining permission from the original source for quotations in excess of 150 words or for tables or figures reproduced from published works.
- ✦ Co-authors are permitted. At least one author must be a Delta Kappa Gamma member.

## Manuscript Preparation

- ✦ Although there is a suggested theme for each issue of the *Journal*, manuscripts on all topics are welcome. The *Collegial Exchange* is not theme-based.
- ✦ Manuscripts should be focused, well organized, effectively developed, concise, and appropriate for *Bulletin* readers. The style should be direct, clear, readable, and free from gender, political, patriotic, or religious bias. Topic headings should be inserted where appropriate.
- ✦ Please see Submission Grid on the following page for specific requirements of the types of manuscripts appropriate for publication.
- ✦ Use *Publication Manual of the American Psychological Association*, current edition, for manuscript preparation. Visit the APA Style website at [www.apastyle.org](http://www.apastyle.org).
- ✦ Double space the entire manuscript, including quotations, references, and tables. Print should be clear, dark, and legible. Pages must be numbered.
- ✦ References should refer only to materials cited within the text. Nonretrievable material, such as papers, reports of limited circulation, unpublished works, and personal communications, should be restricted to works absolutely essential to the manuscript.
- ✦ Abbreviations should be explained at their first appearance in the text. Educational jargon (e.g., preservice, K–10, etc.) should be defined as it occurs in the text.
- ✦ Place tables and figures on separate pages at the end of the manuscript. Use Arabic numerals and indicate approximate placement in the text.
- ✦ Photos, graphics, charts, etc. that may enhance the presentation of the manuscript may be included. Contact the editorial staff ([bulletin@dkg.org](mailto:bulletin@dkg.org)) for information regarding the use of photos.

## Submission

- ✦ One submission per author per issue.
- ✦ Submit electronically, in Microsoft Word format, to [bulletin@dkg.org](mailto:bulletin@dkg.org). Do not submit PDF files. For a manuscript, include definitive abstract, photo of author(s) [see below], and biographical information. Biographical information must include author(s) name(s), occupational position(s), Society and professional affiliations (list offices held), address(es), phone number(s) and e-mail address(es).
- ✦ Electronic/digital photo files must be saved in JPG or TIFF format and must be a minimum of 1.5" x 1.5" with a 300 dpi resolution. For photos submitted to enhance text, include caption/identification information.
- ✦ For poems and graphic arts, submit name, address, and chapter affiliation. A photograph is not required.
- ✦ All submissions will be acknowledged and assigned a review number within 2 weeks. Contact the editor at [bulletin@dkg.org](mailto:bulletin@dkg.org) if you do not receive timely acknowledgement of your submission.

## Publication of Submissions

- ✦ The Delta Kappa Gamma Society International and the editorial staff assume no responsibility for statements made or opinions expressed by contributors in *The Delta Kappa Gamma Bulletin*.
- ✦ All published materials are copyrighted by The Delta Kappa Gamma Society International and may not be reproduced in whole or in part without written permission.
- ✦ The editorial staff reserves the right to make changes of a nonsubstantive nature.
- ✦ Published authors will receive five complimentary copies of the *Bulletin* in which their article appears. For evaluation rubrics, please go to the *Bulletin* page in the Library at [www.dkg.org](http://www.dkg.org).

## Bulletin Submission Grid

Publication	Submission Type and Description	Word Length	Requirements
<i>Journal</i>	Action/Classroom Research: Organized, systematic, and reflective analysis of classroom practice with implications for future practice in teaching and learning.	1,500-4,000	Abstract; documentation; bio; photo
<i>Journal</i>	Qualitative/Quantitative/Mixed Methods Research: Essentially narrative with nonstatistical approaches and a focus on how individuals and groups view and understand the world and construct meanings from their experiences (Qual)/Gathers and analyzes measurable data to support or refute a hypothesis or theory through numbers and statistics (Quan)/Utilizes both qualitative and quantitative data to explore a research question (Mixed).	1,500-4,000	Abstract; documentation; bio; photo
<i>Journal</i>	Position Paper/Viewpoint: Defines an issue; asserts clear and unequivocal position on that issue, provides data and references that inform that position, and argues directly in its favor.	1,000-1,500	Abstract; documentation; bio; photo
<i>Journal</i>	Review of Literature: Presents supporting and nonsupporting evidence to clarify a topic and/or problem of interest and value to educators; synthesizes and critiques the literature; draws conclusions; mentions procedures for selecting and reviewing literature; may include narrative review, best evidence synthesis, or meta-analysis.	1,500-3,000	Abstract; documentation; bio; photo
<i>Journal</i>	Program Description: Provides an overview and details of a single program in an educational setting. Goals, resources, and outcomes are included. No marketing or promotion of a program is allowed.	1,500-2,000	Abstract; documentation; bio; photo
<i>Journal</i>	Book/Technology Review: Combines summary and personal critique of a book, Web site, or app on an educational topic or with educational relevance.	400-700	Introduction; documentation; bio; photo
<i>Collegial Exchange</i>	Classroom Practice/Program: Describes practice or initiative used in a classroom to advance educational excellence	700-1,200	Bio; photo
<i>Collegial Exchange</i>	DKG Chapter/State Organization Practice/Program: Describes a practice or initiative used by a chapter or state organization to advance the purposes of DKG	700-1,200	Bio; photo
<i>Collegial Exchange</i>	Viewpoint on Current Issue: Defines and addresses an issue related to education, women, children, or DKG	700-1,200	Bio; photo
<i>Collegial Exchange</i>	Personal Reflection or Anecdote: Shares a personal experience that provides insight to the human condition, particularly related to educators and women	500-700	Bio; photo
<i>Collegial Exchange</i>	Inspirational Piece: Provides transcript of speech delivered at chapter, state, regional, or international events	700-1,200	Bio; photo
<i>Collegial Exchange</i>	Bio and/or Interview: Shares the story or thoughts of a key woman educator or leader in education, women's issues, or children's issues	700-1,200	Bio; photo
<i>Collegial Exchange</i>	Book Review: Combines a summary and personal critique of a textbook, resource, or book (fiction or nonfiction) related to education or to women and children	400-700	Bio; photo
<i>Collegial Exchange</i>	Technology Review: Combines a summary and personal critique of an educational application, program, or piece of hardware that is useful in the classroom or that is useful in the life of an educator	400-700	Bio; photo
<i>Journal or Collegial Exchange</i>	Letter to the Editor: Responds to items previously published in the <i>Bulletin</i>	200-300	Author's name; chapter/state
<i>Journal or Collegial Exchange</i>	Poetry/Creative Work: Original expressions in any creative format	NA	Bio; photo

**Note:** More detailed explanations of each category may be found on the Editorial Board page at [www.dkg.org](http://www.dkg.org).



P.O. BOX 1589  
AUSTIN, TEXAS 78767-1589

PERIODICALS  
POSTAGE AND FEES PAID  
AUSTIN, TEXAS