Journal of the Effective Schools Project 2016

"Enhancing Teaching & Learning with Innovative Instruction"

TARLETON STATE UNIVERSITY
Member of The Texas A&M University System
Journal of the Effective Schools Project

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Donna Savage
Editors’ Note
Journal of the Effective Schools Project
"Enhancing Teaching and Learning with Innovative Instruction"

Dear Readers,

Instruction with the student first in mind is the foundation of all teaching. Teachers sharing instructional intervention ideas in relation to challenges in the classroom benefit us all. The articles in volume XXIII of JESP serve as reminders of our purpose and passion to seek out the best instructional interventions to meet our students’ needs.

The cover of this edition presents a champion for public schools, John Kuhn. A few years ago, he stood on the Texas capitol steps with a letter from the Alamo. We are proud to share his story and ideas. John Kuhn calls to us all, “Defend Public Education!”

We have two Tarleton Stars recognized in this volume of JESP. We are proud of them. Look for Michelle Oney Spradley and Sarah Titus in the Tarleton Stars section. They are Tarleton teachers who are the finest examples of the science and art of teaching. Read their accomplishments and contributions to our profession.

In the Student Service and Research section, one of our Tarleton Stars, Sarah Titus, shares her experiences as a student researcher at Tarleton State University. She served with several professors as a fellow researcher. As a new teacher, Mrs. Titus uses the skills learned from these experiences to improve her teaching. She uses data to make decisions and represents the professional nature of the teaching profession well. We are excited to see Sarah join the teaching profession. Soon we will be learning from her and her experiences as an action based researcher who seeks to meet the diverse needs of the students and families she serves.

The Book Shelf by Dr. Miller-Levy continues to be a favorite. Please visit her review of books concerning our theme for the 2016 journal—Enhancing Teaching and Learning with Innovative Instruction. Dr. Miller-Levy addresses the need for teachers to view students with a GROWTH MINDSET. The selections she has gathered may serve as a professional reading text-set relating growth and using students’ strengths to overcome challenges.

The Journal of the Effective Schools Project (JESP) is also online. Readers are able to view all past articles (1992 to present) at JESP’s website http://thejesp.org/index.php/jesp/issue/archive or http://www.tarleton.edu/esp/Journal/index.html. Once there, please click on the link—“View Copies of the Journal of the Effective Schools Project”. Also, please consider submitting a manuscript to JESP. Please visit our website site for authors and reviewers at http://thejesp.org.

This issue will be my last issue as editor of JESP. Since 2006, I have enjoyed my time as assistant editor, co-editor, and finally executive editor. I have learned much about education and the amazing educators in our profession who serve students with energy and passion. Thank you Dr. Larmer and Dr. Pam Winn for allowing me this wonderful opportunity. I am better for it. I will begin a new role at Tarleton State University. Change is wonderful, but ESP and my work with teachers has been enriching and life changing.

The articles included in this volume (XXIII—Enhancing Teaching and Learning with Innovative Instruction) provide ideas to overcome the challenges teachers face daily in their classrooms. The challenges always increase, and no one has all the answers to all the challenges teachers encounter. However, with this volume of JESP, we hope to provide ideas and answers to a few challenges. Together we are better. If you find an article as helpful or want more information from the authors, please email us and tell us about your experiences or needs (editor@thejesp.org).

Sincerely,

James E. Gentry, Ed.D. Editor (2006-2016)
Journal of the Effective Schools Project
Tarleton State University
An Excerpt from Walden and a Plea to Engage in Civil Disobedience: Meaningful Reform and School Improvement for Innovative Instruction

Dr. Ian M. Metter and Dr. Bradley W. Davis

Many years ago, Henry David Thoreau produced two pieces of writing that directly apply to the current state of public schooling in America. The first, *Walden*, discusses the notions of self-reliance, simplicity, and progress (Thoreau, 1882). For over a decade and a half, local school systems’ self-reliance has been compromised by layers of policy and accountability imposed by state and federal governments. These layers have created incredibly complex “solutions” for improving schools, rather than focusing on simple, yet meaningful improvement efforts (e.g. relationships with students, communication with parents, instructional supervision that improves and innovates teaching, etc.). Educational progress is now measured externally through aggregated, standardized test results, rather than looking at the specific needs of individual students or providing leadership that inspires others to achieve greatness. The second Thoreau piece, *Civil Disobedience*, argues that government action can do more harm than good, and that citizens should not sit idle hoping for change, but rather must take action to prevent injustice (Thoreau, 1903). While No Child Left Behind (NCLB) certainly helped to highlight discrepancies in achievement between various demographic groups, it has done little to improve educational quality and opportunity. In many regards, NCLB and other related policies have weakened the American public school system. Teachers, administrators, and especially academia, have taken little action to counteract this weakening and rehabilitate our system of schooling.

We are writing this as an open letter to our practitioner compatriots, the people in the field every day, who through their blood, sweat, and tears, are attempting to help our education system become better and make positive impacts on the lives of students. As academics, we are supposed to be engaged in research that impacts the education profession and help solve problems of practice. Recently, however, we have both come to the same conclusion that somewhere along the way, academia got it wrong. Instead of bridging the gap between theory and practice, academia has widened the distance between research and what practitioners are looking for in terms of solutions to often complex and difficult issues of social justice. Due to an omnipresent concern with tenure and promotion requirements (which we view as a form of high stakes accountability in higher education) academia has inadvertently stifled its ability to effect change and improve education. Academics often produce journal articles that are read by a select few, with very little of these articles translating into practical use among practitioners. Put bluntly, academics often focus on doing work about public schools, rather than doing work for public schools. And so in many respects, academia has failed.

What we must do, as a collective group of EC-20 educators, is decide if we are going to accept the status quo of what is expected of both of our groups. If we decide to forgo change, then we might find cold comfort in exchange for compliance. Or, perhaps, we could do something novel. We could work together as educators to push back against policy makers and bean counters, and challenge the belief that good instructional practices mean teaching to a test. Through innovative instruction, we could engage our students in the pressing issues of our local communities, leading to meaningful change in our society. And by acknowledging racial, ethnic, and economic disparities that create inequities in public school systems, we can continue to address real issues of social justice. In order to accomplish this, however, our work requires time, capacity building, and community engagement to improve educational outcomes.

In many school systems, we have witnessed the increased acceptance of reform policies that we know lack sound pedagogical practices. Perhaps the time has come to engage in an act of civil disobedience as a form of resistance against the very accountability practices that prevent us from addressing issues of social justice and equity in a collaborative manner. If our goal is to engage students in meaningful learning, then we must think innovatively and empower each other to be self-reliant in order to address the learning needs of our individual students. After all, there is no conceivable accountability policy that will hold us as educators to standards higher than the ones we create for ourselves – the ones shaped by our passions to positively impact the lives of youth and to build a brighter tomorrow. We believe we can work together differently so that practitioners influence how and what researchers examine, and conversely, so that academia produces scholarly work that is practical, contextual, and
accessible, all of which can help educators build capacity within schools to improve the lives of students. We propose that, together, we can do the following.

**Bridge the Theory-Practice Gap**

There are many in academia – just like us – who want to work with practitioners to help address problems of practice within a school building like yours. Through taking part in action-research projects within your school building and district that are led by practitioners, there is an opportunity to build the knowledge base of engaging students through innovative instructional strategies. Please reach out to the faculty at your local college or university educational leadership program to talk about the problems of practice you are experiencing in your school building or district. On our end, we pledge to encourage our higher education colleagues to reach out to EC-12 practitioners. Likely, other leaders are experiencing the same problems, and your local educational leadership faculty can help coordinate a study that would help address the issues you are experiencing. Not only can your local college/university system help coordinate a study, but with the right support, they can likely use the level of interest from surrounding school districts to help highlight the need to provide support to a critical mass through a grant opportunity. Doing so could address capacity building efforts with practitioners while simultaneously providing new publishing opportunities that non-academics might actually read.

**Create Practitioner-Researcher Synergy**

Traditionally, policy-making has been thought of as a three-pronged process, where practitioners, researchers, and policy makers have worked to influence and impact educational policy development. In today’s age of accountability, however, policy making can be thought of as a one-way directional process, where policy makers talk down to both practitioners and researchers, telling us what we are to do as we respond to policy mandates (see Figure 1). If we are willing to work together, we believe that we can push back against accountability efforts that create undo pressure on teachers and students to perform on high-stakes accountability tests. Instead, if we work together to provide instruction that is engaging to students and meets their 21st century needs (i.e. use of technology, project-based learning, collaboration, etc.), we believe we can engage in a form of community-based school improvement that takes into account the needs of our communities and begins to unpack the sometimes messy and ugly history that has served to keep our country racially, socially, and economically divided.

In order to engage locally in school improvement efforts sur-

*Figure 1: Downward Influence of Policymakers*
ranging issues of instruction, we can promote participation among parents, community groups, and businesses that are crucial in creating a better society for our children. By engaging our communities in a community-based school improvement process, and creating innovative instructional strategies and practices by practitioners and researchers working together, we believe that we can highlight for policy makers the real accountability of American public schools: The demand to meet the needs of local communities and to provide equitable, free education to the public to prevent inequity among different groups of citizens. For example, rather than throwing School Improvement Grant (SIG) funding at efforts that rarely translate into sustainable change (and are often conducted as reform experiments on low-SES, high minority percentage schools), we believe this money and additional funding could be spent on improving opportunities to create and maintain local and regional networks to support instructional practices that engage students in their communities. However, this can only happen if we work together and refuse to let reform efforts drive us apart. Instead of thinking about education policy making in this manner, perhaps we should think about this as a scale, where we can tip the balance in our favor (see Figure 2).

**Promote Internal Accountability Measures**

While we know that you cannot forgo your responsibility to give standardized assessments, we do think we can work together to better navigate a hostile policy environment. As a reflective practitioner, you know the detrimental effects accountability policies can have on the very students you are attempting to serve. While NCLB helped highlight issues of inequity, we believe the accountability policies you have to implement actually prevent students from improving their learning and in some instances actually widen the achievement gap. Because accountability policies primarily focus on increased test scores, principals and teachers are incentivized to abandon pedagogically sound practices in exchange for quick solutions that do little to improve the learning of students. For example, many corporations that write state standardized tests now sell prepackaged curricula that are highly aligned to the state standardized test – resources that do little to improve the critical thinking of students or to engage them in their own local communities. Additionally, these very accountability standards which are supposed to improve equity among different racial groups actually disincentivizes culturally responsive pedagogy. We believe that by promoting reflective inquiry regarding classroom instruction, EC-20 educators can work together in school buildings and districts to lead efforts that develop trusting relationships with students and examine factors such as ethnicity and race, which we know to play an important role on how children interpret instruction and how teachers deliver curriculum. By resisting prepackaged curriculum in your schools and districts, there can be an increased opportunity for parents and teachers to speak with each other about how to best meet the cultural needs of your students through responsive pedagogy and instruction of critical thinking. Again, there are many researchers who would want the opportunity to impact your school district in a meaningful manner that hopefully would lead to a better education system for our children.

**Influence Policy**

Although we know that it is very difficult to dedicate time in the school year to such an endeavor, please consider working with your educator association or union, in conjunction with local college/university faculty, to have a day where we meet with policy makers.

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**Figure 2: Pushing Back on the Scale**

![Pushing Back on the Scale](image-url)
at the state capital. By demanding to meet with policy makers to address educational and instructional issues, we can continue to make education a political issue, and empower educators to drive change in policy decisions by working collectively. Our education system will not change unless we empower practitioners, work together to conduct research that shows scientific evidence about how to best engage students in their learning, and how educators work hard every day to be accountable for supporting their communities.

We do not expect educational reform to change overnight, but it can change incrementally if we work together. If you take nothing else from this letter, please know that many in academia believe that to impact change within education, we must be authentically engaged, together, with the issues you are experiencing every day. We would like nothing more than to work as partners, together, to produce more meaningful research that directly impacts schooling. While we encourage our colleagues to reach out to you, we ask that you please, reach out to university faculty, so that we may work together to address issues such as instruction, student engagement, social justice, and equity. Together we can exercise our voices to promote change.

Below we share commentary from some practitioner compatriots whom have reviewed our open letter. We are encouraged by their passion, which we view as evidence of mutual interest amongst K-12 practitioners and academia to engage in more meaningful, collaborative work. Additionally, we hope this open letter sparks additional thoughts and commentary from all of those that read this submission. We would love to hear additional feedback on how we can all work together in a more collaborative manner to drive meaningful reform efforts. That being said, please take the time to send us your thoughts to ianmette@gmail.com. In a future volume, we hope to present a synopsis of the responses we receive.

I could not agree more that very few practitioners read about research, and I believe wholeheartedly that research is about education and not for education. This article has me fired up about change and improvement AGAINST the testing system! Personally, I would love to work with a professor in an action-research project about the woes of our students. Do you think there could there be some sort of list/contact space for this communication to be started? Finally, I recently took a trip to [your state capital] that taught me that policy makers really do want to hear from educators about the ways in which education actually happens...perhaps others that read your letter should pick up the phone and call their representatives!

– High School Math Teacher

Allowing districts to work with researchers to find solutions for implementing highly effective instruction through cultural relevance is an opportunity I would greatly appreciate as a practitioner, an aspiring school leader, and as a Latina. Each school community has its own distinct needs, so curriculum and instructional practices that reflect the needs and pertinent issues reflecting each community are far more likely to yield increased engagement and self-sustainable contributions to the community at large. TESOL International hosts an Advocacy Day once a year to speak with state policy makers with the purpose of bringing to their attention the needs and issues in the world of K-12 English learners and their education. I believe this is a necessary step in creating an allied culture of integration and collaboration among constituencies. This article brings to light an imperative many educators have been seeking for many years.

– District ELL Coordinator

An area that seems to be up and coming is teacher leadership. Leadership, in general, is an area that I feel is the missing link – principals and teachers. I am hopeful that the development of teacher leadership strengthens the voice of teachers. Along the way, however, the hierarchy of decision making in education from federal to state to district to campus to grade level or subject level teams will have to adapt so the voice of the teacher is welcomed and heard.

– Title I Elementary Intervention Specialist

I love the part about challenging the beliefs of policy makers, as it accurately echoes the sentiments of educators and serves as a call to action for those who find themselves as incessantly compliant bystanders despite their complaints. Also, so much of the necessary research is inaccessible unless you have been trained on how to read it and decipher it. Most educators do not have the time or capacity to wade through a 20-30 page journal article. As a practitioner, I fully agree with all of the points this call to action brings up! I very much enjoyed reading it and I feel the passion that is necessary to inspire change within your words.

– Middle School English Teacher

References


*About the Authors:*

Dr. Mette is an assistant professor of Educational Leadership at the University of Maine. His research examines the intersection of instructional supervision and school reform, specifically how school reform negatively influences supervision provided by instructional leaders. Dr. Mette has also served as a public school teacher and central office administrator.

Dr. Davis is a mixed-methods researcher whose teaching and research interests include social justice leadership, public school administration, leadership policy, educator labor markets, and education law. Prior to joining The University of Texas at Arlington, Dr. Davis was a Texas public school educator in the Greater Houston area.
Supporting Instructional Innovation: An Interview with John Kuhn

Dr. Don Beach and Mr. John Kuhn

John Kuhn is superintendent of the Perrin-Whitt ISD, northwest of Fort Worth and has been a vocal advocate for public education. His “Alamo Letter” and YouTube videos of his 2011 speech at a Save Texas Schools rally went viral, as did his 2012 essay, “The Exhaustion of the American Teacher.” After John graduated from Perrin-Whitt High School, he came to Tarleton State University on a Dick Smith Scholarship, and during his freshman year, was interviewed by the JTAC as the youngest student on campus. When he completed his bachelor’s degree with teacher certification, he was only 20 and so he worked with his church in Perrin for two years. When he returned, he began his teaching career in Graford, Texas and in 2004, he completed his Master’s degree in Educational Leadership from Tarleton State University and obtained his principal certification and a job as an assistant principal. In 2007 he became principal of Mineral Wells High School and in 2010, he became superintendent of Perrin-Whitt.

In addition to his famous “Alamo Letter,” John Kuhn has written two books. The first, Test and Punish describes how schools are made to over-test students, hamstring teachers, and penalizes everyone according to student test scores. In his book, he tells how a series of court cases and legislative actions concerning unequal school funding led Texas to adopt an accountability system based on high-stakes testing. That system became the state’s measure of an “adequate” education while discounting financial disparities among school districts, and through an alliance of business leaders, legislators, think tanks, and foundations, an entire industry grew up around developing tests and associated products in Texas and other states.

His newest book, Fear and Learning in America: Bad Data, Good Teachers, and the Attack on Public Education, was published by Teachers College Press with the foreword by Diane Ravitch. In this powerful new book John conveys a deeply held passion for the mission and promise of public education through his own experience as a teacher and administrator. His book requires us to question whether the current education crisis will be judged by history as a legitimate national emergency or an agenda-driven panic, spurred on by a media that is, for the most part, uninterested in anything but useless soundbites. Perhaps the greatest acknowledgement of the importance of his book came from Diane Ravitch who said, “John Kuhn’s book is packed with more wisdom than any 10 books that I have read about American education. It is the wisdom of born of experience. It is the wisdom of a man who cares about children, families, and community.”

When asked about why he took such a vocal stance about public education and educational reform, he said, “I came to realize that there was something better for all of our kids and that we were being sold out for something less. What worries me most, as both a dad and an educator, is the outsized influence of test-makers, statisticians, and economists on modern educational decision-making. Unfortunately, our wizards of data are not wizards of humanity, and they have foolishly elevated impersonal forces as the drivers of education. The education of children is above all a human endeavor. We aren’t programming answers into computers; we are inspiring and encouraging and challenging and coaxing and pulling and hoping and praying and hugging and wiping tears and watching ball games and telling them how nice they look in their prom dresses.”

Don: What prompted you to write the “Alamo Letter”? What was the response of your colleagues?

John: I wrote that letter after listening to a Texas state senator describe $5.4 billion in education budget cuts as inevitable in one breath and then, in the next, label a new multi-million dollar standardized testing regime - one that included 15 end-of-course exams - as “non-negotiable.” I felt that she was very interested in protecting the testing contractor’s bottom line but not the least bit interested in protecting teachers’ livelihoods or defending classrooms and students from the adverse effects of cuts to local school funding. The response from my colleagues was resoundingly positive. I received hundreds of emails, calls, and letters in support of my point of view, plus invitations to speak around the country. I was even asked to interview for the job of superintendent in the third-largest city in a Northern state.

Don: As a school leader, what obstacles do districts, campuses, and teachers face when trying to implement instructional innovations/changes? What have you done/experienced as an administrator that has helped you over-
come these obstacles?

John: The first and most difficult obstacle is funding. For more school districts than people realize, funding is insufficient for the purposes of public education espoused by our state leaders, enshrined in our state constitution, and required by decades of case law. Texas politicians talk a big game when it comes to academic rigor and high expectations, but they aren’t honestly willing to invest the money it takes to bring that big talk to life. They’re all hat and no cattle; all rigor and no resources. In addition, the state takes these insufficient education dollars and distributes them very, very unequally among the state’s schools. Schools that get lower-than-average funding amounts are really over a barrel—they face strict accountability to meet high standards while enjoying half to one-third the funding of the most-generously supported school districts in the state. It is unjust and counterproductive on its face, and it’s the reason that Representative Hochberg found a $1000 per-pupil funding difference between exemplary Texas schools and academically unacceptable ones. You get what you pay for.

Various other obstacles exist. First, a growing poverty rate and growing income inequality ensure that the teacher’s job is harder than ever. Second, the political climate and our politicians’ gleeful tendency to pander to the most extreme and antisocial voices in the electorate guarantee that public servants and public institutions are routinely misrepresented as inefficient and wasteful, even when they are continuously “doing more with less,” as the tired saying goes.

Third, teachers are leaving the profession because of the meanness and distrust embodied in our accountability and teacher evaluation policies. Teachers and administrators are presumed incompetent, and our policies are built not on appreciation and support for these great folks, but rather on the assumption that lots of them are terrible and need to be identified and shamed into leaving. Fourth, a surprising percentage of our students experience physical and sexual abuse, and people outside our schools don’t realize it. In the end, because our society does so little to ensure that our children have a safe, stable and healthy life, education kind of slips down the priority list for many. Kids are hungry, but not only for food. Many of them starve for affection and limits and hope, and our teachers are sometimes chasing their tails trying to attend to the tough demands of the accountability movement—all serious academics, all the time—while also trying to fill those non-academic gaps that suck the hope out of our students.

Another obstacle is “the way we’ve always done it.” Sometimes it’s hard to change when approaches are ingrained in a campus’s history. I have watched teachers overcome these obstacles by pouring themselves into this career. They spend their own money on supplies that parents don’t provide and the state doesn’t cover and they stay late and agonize over lesson plans, hoping to find a key to overcome kids’ hurts and get through to them. They grit their teeth in the face of political attacks on their profession. They take the time to love kids, despite calls to spend every instructional minute cramming for the STAAR test. Overcoming the obstacles is ultimately, in my opinion, a question of loving the children who are the future of this state enough to do the right thing.

Don: What instructional innovation(s)/changes have you support-
of program atop program (combined with disempowerment when teachers don’t have a say) often ends up being counterproductive and driving teachers crazy, or out of the district. I’m not the kind of leader who will list a suite of programs or innovations that I swear by—I honestly don’t care how we get results as long as it’s ethical and research-based and treats kids right. I do reserve the right to weigh in when a campus leader presents an idea or program that they and their teachers have decided they want to implement, but I think ownership is a big chunk of what makes any innovation work for kids, and letting the teachers and principals drive innovation, to me, is more effective than me going out and trying to pick the very best approach for this or that. That’s not to say that I won’t be a part of the process; if a principal asks me to help find a solution to a problem they are confronting on their campus, I’ll gladly find resources and approaches and present them for discussion.

Innovation should be fun and exciting and highly participatory. We administrators err badly when we recast it as something mandatory, top-down, and compliance-centered.

Don: What advice would you give teachers about implementing instructional change or innovation in their classrooms?

John: Own it. Identify areas in need of improvement by assessing your kids appropriately and seriously, and by reviewing their results without bias or preconceived notions. Also, don’t be thin-skinned when it comes to identifying the strengths and weaknesses of your current instructional approach or your students’ results. When you know where a weakness is among your pupils, be a strong enough person to discuss it openly and professionally with peers and campus leaders. Get into the meat of things, without fear of recrimination. Trust your peers to support you and help you find solutions. In these discussions, you may find that the issues that you are confronting are universal on your campus. Enlist help by asking others if they have done anything or heard about anything that can make an impact. When you find an approach that you’re excited about, visit with your peers and campus leaders to get support for trying it. And then go for it! Next, get feedback. Ask for a walkthrough. Talk it over honestly. One difference between the best and the rest when it comes to teachers is this: professional courage to accept honest critique. We only get better when we truly accept what we can improve upon. Finally, share the results of your instructional innovation—if students show improvement, take the evidence of that improvement to the principal and colleagues. Share tools that work with your teammates, so others can see if those tools might be of help to them as well. We are all on the same team, and we are all about the same work. Kids are depending on us.

One other thing: don’t innovate just for the sake of innovating, or just for the sake of doing something different. Find and do what works, and throw everything else overboard.

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Breadth and Depth of Teaching: A University-Based Combination Model of Teacher Preparation with District Participation and Commitment

Dr. Sara Lawrence

In 2015, “Poor collaboration/disconnect between K-12 schools and Teacher Education Programs/Faculty” was the most warranted criticism of teacher education by Division K –Teacher Education group of the American Educational Research Association (AERA). How do university-based teacher preparation programs increase relevancy and efficacy of practice on behalf of the school districts and teacher candidates served? This article describes action research of a combination model of teacher preparation that draws on experience and research on professional development school models and co-teaching models that support connections and collaboration between districts and university education programs. The model asserts a teacher preparation program that provides the breadth (early field experiences) and depth (co-teaching field experiences) of understanding and experience in teaching that districts demand and new teachers require for career success. The combination model is flexible enough for replication by any university-based educator preparation program facing challenges related to competition from private industry, political pressure at state and national levels, or meeting ever increasing needs of today’s schools.

In April 2015, at the annual meeting of American Educational Research Association (AERA) held in Chicago, members of Division K - Teacher Education met and responded electronically to open-ended questions regarding criticisms of university-based teacher education programs. Of the 564 participants, nearly 40% of participants agreed “poor collaboration/disconnect between K-12 schools and Teacher Education Programs/Faculty” was the most warranted criticism of teacher education (Miller, 2015). Indeed, facing the harsh criticism of university-based education programs is difficult but necessary. Without clear understanding of criticisms, teacher preparation programs cannot face competition from private industry, political pressure at state and national levels, nor begin to meet the ever increasing needs of today’s schools. So, how do programs increase relevancy and efficacy of practice on behalf of the school districts and teacher candidates served? This article describes action research of a combination model of teacher preparation that draws on experience and research on professional development school models and co-teaching models that support connections and collaboration between districts and university education programs.

Research Questions and Review of Practice
Questions about relevancy and efficacy of practice are not new questions for university education programs. At Texas A&M University-Texarkana, Teacher Preparation Program (TPP) faculty and staff heavily debated questions of relevancy and efficacy over several years. Relevancy was defined as the perception of TPP as a significant contributor of teachers by schools and teacher candidates. Efficacy of practice was defined as the quality of the teachers prepared by the TPP for schools. To gain understanding, faculty visited successful programs, reviewed current literature and tapped the collective wisdom of colleagues and organizations (see Appendix A for Acknowledgements). At the same time, A&M-Texarkana's nationally-recognized professional development school ended due to district funding and restructuring issues related to state funding cuts. So, questions included how the TPP could apply strengths and lessons learned from the successful professional development school to a model that would require the same commitment but less funding from districts. In addition to funding, resources of time and personnel needed for another lab setting for a professional development school in a district was no longer possible also due to state funding cuts and pressures related to impending accountability changes (e.g. STAAR testing).

Simultaneously, research in favor of earlier field experiences for teacher candidates was building (e.g. Capraro, Capraro, & Helfeldt, 2010; Gomez, Strage, Knutsen-Miller, & Garcia-Nevez, 2009; Zeichner, 2010). So rather than push for another lab school partnership, education faculty worked with districts in the region to find out if there was an interest in participating, short-term, in a lab school model. With this model, foundational classes would meet on campuses up to several weeks in “lab classes” for structured observation and relevant application of education concepts. The positive response was immediate. Schools wanted to participate to
have an early look and recruit candidates, have teachers benefit from outside observers, have the opportunity to provide new and relevant information to potential candidates (e.g. STAAR, data management systems).

While the lab classes were first implemented as early field experiences, faculty continued to investigate ways to restructure later field experiences. At a conference, faculty discovered St. Cloud State University’s model of student teaching using co-teaching practices (see Heck & Bacharach, 2015/2016). The model’s research was impressive and the depth of collaboration between student teacher and cooperating teacher was the component A&M-Texarkana was missing from their previous professional development school utilized during student teaching.

Change of Practice: Combination Model
As stated earlier, questions about relevancy and efficacy of practice are not new questions for university education programs. But unfortunately, finding and implementing new answers is sometimes difficult in the slow moving world of higher education. At times, smaller universities have an advantage over larger universities in changing paradigms and honing program directions. Implementing the lab class sections for early field experiences in foundation classes was a relatively easy program shift. As lab classes continued, education faculty more easily ascertained district initiatives and concerns. It was clear that districts were demanding more inquiry-, problem- and project-based instruction from their teachers. As a result, A&M-Texarkana education faculty intentionally integrated these and other high impact strategies into methods courses, with specific emphasis on project-based learning.

Focusing on co-teaching strategies in field-experiences and student teaching was more logistically challenging. First, university faculty and district teachers needed to be trained in co-teaching principles and strategies; afterward, they were involved in planning how the co-teaching model could be integrated into A&M-Texarkana’s TPP with teacher and district support. As a second priority, university faculty and local administrators wanted the co-teaching experience to match the year-long field experience of the professional development school providing candidates the experience of starting and ending a school year. Local administrators maintained that the year-long experience benefited first year teachers stating the professional development school experience made “first-year teachers look like third-year teachers.” The year-long experience was resolved by having candidates participate in an introductory semester of co-teaching (Block 1) assigned to a cooperative teacher in the first semester of their senior year during which the candidate and cooperative teacher participate in co-teacher training. Then, during the student teaching semester, the candidate remains in the same class the entire day participating in co-teaching (Block 2) allowing the candidate to internalize and process nuances of teaching without having the burden of establishing a trust relationship with another cooperating teacher.

Implementation of Combination Model

The Junior Year – The Breadth of Teaching
During the first semester of the student’s junior year, students apply for admission into the Teacher Preparation Program (TPP) while beginning foundational course work. Course work and field experiences are designed to allow students to internalize knowledge and experiences regarding the landscape of education, the breadth of teaching.

Lab Class Semester. Foundation courses taken the first semester of junior year include Foundations of Education and Growth and Development for Early Childhood to Grade 12. Day sections of these courses are taught as “lab sections” in which university students are taught primarily in regional schools in a very structured manner. Lab classes expose students to the variety of settings available to EC-12 students today including “typical” elementary, middle and high schools, magnet schools, charter schools, alternative schools, virtual schools and private schools.

University faculty works closely with school leadership at each school participating in lab class to align course concepts/competencies with each lab class. The classes meet at each school for one or two weeks spending a minimum of six hours a week at a school. During this time, four steps are completed: the instructor addresses course content with students; students observe classrooms focusing on content topics; school leadership arrange for presentation and discussion by district personnel on application of topic in the field (e.g. proper use of technology, Response to Intervention, Dyslexia Therapy, project-based learning, classroom management, data management, etc.); and instructor debriefs experience with university students. Student complete assignments, lesson plans (with video segments for critique and reflection), academic analyses, reflections and exams based on their observations, readings, district
presentations and class discussions.

**Project-Based Semester.** During the project-based semester, candidates extend their understanding of content and content pedagogy through methods classes. Courses extend knowledge developed in lab classes allowing candidates to further their skills in planning, delivery and assessment of standards and proficiencies through high-impact practices, specifically through project-based assessments that include problem-based and inquiry-based foci.

**The Senior Year – The Depth of Teaching**
The students’ junior year is about range and scope of the educational landscape - the breadth of teaching. However, the students’ senior year is about focus, nuance and detail in teaching and learning over the course of the school year – the depth of teaching.

**Co-Teaching/Block 1.** During the first semester of senior year, students participate in clinical work in the public school setting as part of field requirements for the TPP. University students, formally admitted into TPP, are identified as “teacher candidates” and are required to spend six hours per week for 12 weeks in an assigned classroom under the supervision of an Instructional Leadership Team (ILT), which includes a university field supervisor and cooperating teacher. Teacher candidate and cooperative teacher participate in co-teaching training that includes principles and strategies of co-teaching. Block 1 is the first semester of the co-teaching assignment in which candidate and cooperating teacher are introduced as co-teachers to the class. During this semester, candidates complete co-teaching assignments, activities, lessons (videoed for critique and reflection), and projects as assigned by ILT.

**Co-Teaching/Block 2.** During the final co-teaching semester, the teacher candidate spends 72 full public school days with the same cooperating teacher and increasingly assumes leadership roles in planning and assessing co-taught lessons under the supervision of the ILT. Candidates complete co-teaching assignments, activities, lessons (videoed for critique and reflection), and projects as assigned by ILT. Candidates observe other classes as assigned by ILT.

**Data Analyses**
May 2015 represented the end of the first cohort to have access to the entire combination model. At the end of their program, teacher candidates and cooperating teachers completed an online survey regarding their 1) experience with the TPP and 2) experience with the new co-teaching model. All teacher candidates (N=28) responded to the survey for a 100% response rate. Less than half of the cooper-

<table>
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<th>Themes</th>
<th>Teacher Candidate Excerpts from Survey</th>
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| **Faculty & Staff Expertise and Support** | • Amazing staff who go above and beyond to help students  
  • Knowledgeable professors  
  • Support from staff  
  • Staff/educators are very friendly and encouraging  
  • Expertise from professors and instructors  
  • Field supervisor is very helpful  
  • Advisors are well informed about program  
  • Wonderful, knowledgeable field supervisor  
  • [Instructors] always push you to do your best  
  • [Instructors] were a strength  
  • Faculty and staff care and want to help us succeed. |
| **Teaching Experiences** | • Positive, realistic experiences  
  • A lot of hands-on experiences  
  • Program allows you to gain plenty of experience in classroom  
  • Good to feel like a part of classroom  
  • Amount of time actually teaching |
| **TPP Organization** | • The layout of the program  
  • Organization  
  • The way it is organized!  
  • Flexible hours for working Moms with partial and full courses online. |
| **Preparation for Class** | • The program prepares students for teaching job  
  • Prepares students to become teachers  
  • Prepares students to have their own classroom |
ating teachers (N=11) responded to the survey for a 39% response rate. Candidate comments over program experience organized into five themes represented in Figure 3.

Open ended responses to year-long co-teaching experience were overwhelmingly positive. 26 of 28 candidates felt the experience was beneficial. Two negative comments related to negative perceptions of cooperating teacher. Figure 4 includes examples of positive comments.

Like teacher candidate responses, cooperating teacher responses regarding co-teaching were overwhelmingly positive. Cooperating teachers were asked to check a list of 13 potential benefits experienced from the year-long co-teaching. The top five responses were: 1) More creative lessons (73%), 2) More in-depth knowledge of pedagogy for the candidate (73%), 3) Worked well as a team to meet needs of students (53%), 4) Students questions were answered more quickly (53%), and 5) Fewer classroom disruptions (53%).

Conclusions
The goal of A&M-Texarkana Teacher Preparation Program has been to have a greater connection with the schools in a manner that is relevant and provides more effective preparation for teacher candidates. Early results indicate teacher candidates and cooperating teachers support A&M-Texarkana’s integrating of a combination model of preparation that includes lab school components of professional development schools and co-teaching models. Local teachers and administrators have become more active partners and invested in preparing the next generation of teachers as evidenced by their participation in planning and implementing current field experiences and contributing more in TPP activities. For example, last spring, a local principal met with TPP faculty to inform faculty on T-TESS rubrics and directions.

Additionally, having greater connections with schools has allowed TPP faculty and staff to be aware of district initiatives and concerns; this knowledge has supported TPP faculty and staff perception as relevant and knowledgeable of current practices. Knowledge of district initiatives and concerns has also allowed education faculty to make programmatic changes that directly align with district needs allowing greater efficacy of practice on behalf of candidates and schools served. Glitches have occurred and tweaks have been made, but the combination model has allowed relationships to develop between university faculty and district personnel to create a collegial atmosphere in which obstacles are minor and benefits are great.

Overall, A&M-Texarkana education faculty implemented a model that requires district commitment and participation and allows school administrators and teacher candidates to feel confident that program preparation provides the

Figure 2. Teacher candidate responses regarding year-long co-teaching experience.

<table>
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<tr>
<th>This year, [through the co-teaching semesters] you had one cooperating teacher. Do you feel there was a depth to your experience that was beneficial to you?</th>
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<tr>
<td>• I think only have one teacher allowed us to bond more with our teacher and our students. I think [year-long co-teaching] was a great change for the program!</td>
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<tr>
<td>• I think by having one cooperating teacher I was able to build a relationship with her and the class that helped me become ready to enter my own future classroom.</td>
</tr>
<tr>
<td>• I was able to build relationships with the teacher, students, as well as being able to see their growth from day one to the last weeks of school.</td>
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<tr>
<td>• I was able to spend more time learning specific teaching tools, ideas and classroom management by being able to be in one assignment the entire year. I also took advantage of seeing other classrooms, but always loved returning to my class.</td>
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<tr>
<td>• I got to see the kids grow so much throughout the year.</td>
</tr>
<tr>
<td>• I was able to see how to run a classroom by a great teacher and to think of how I want to do things differently.</td>
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<tr>
<td>• Being with one teacher allows you to get into the rhythm of the classroom.</td>
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<tr>
<td>• There was a depth to the experience that you do not normally get in standard student teaching.</td>
</tr>
<tr>
<td>• By being with my co-teacher I was integrated into the classroom sooner. I feel this gave me ample experience and provided me the education needed to be a great first year teacher.</td>
</tr>
<tr>
<td>• I got to see the entire year from start to finish and that was beneficial.</td>
</tr>
<tr>
<td>• I had the experience to stay in one room and build relationships with the children instead of having three separate teachers and not being able to actually experience anything.</td>
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breadth (early lab class field experiences) and depth (co-teaching field experiences) of understanding and experience in teaching that districts demand and new teachers require for career success. Further, the combination model is flexible enough to be replicated by large and small university-based educator preparation programs facing challenges related to competition from private industry, political pressure at state and national levels, or meeting ever increasing needs of today’s schools.

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Teaching Reading to Students with Special Needs: A Case Study of One High Performing High Poverty Urban Elementary School

Ms. Patricia Del Toro, Ms. Elena Rabinovich, Dr. W. Sean Kearney and Dr. Theresa Garfield Dorel

Closing the achievement gap is of paramount importance in order to ensure educational equity for all children, regardless of race, socioeconomic status, or ability. In the United States, there is a large gap in reading abilities between students identified with exceptionalities and those without such identification (Toldson, 2012). This does not need to be the case.

This case study begins with a literature review identifying issues in teaching reading to students with exceptionalities across the United States. Informed by the context of these national models, the authors next present information on how this particular campus was selected for case study analysis and the steps we took to investigate their success. Finally, the results of this case study are presented in the hope that these findings may be transferable to other schools which are also seeking to improve reading abilities among students with exceptionalities.

The Achievement Gap

Ethnicity and socio-economic status are two well established predictors of student achievement (Leithwood, 2010; Noguera, 2008). Further, there is an achievement gap in the reading abilities when comparing general education scores to those of students with exceptionalities (Toldson, 2012). In Texas, there is a 20 percent gap between general education students and students receiving special education services in passing rates on the State Assessment of Academic Readiness (STAAR) Reading exam (Texas Education Agency, 2013). All public schools are accountable for the number of students receiving special education services and their academic performance (Salend, 2008). While both state and federal laws require individualized education plans for all students with exceptionalities in order to ensure their learning success, achievement results demonstrate that a gap clearly remains (Texas Education Agency, 2013).

The Nation at Risk report argued that American students were poorly educated, making them unable to contend in the global marketplace (A Nation at Risk, 1983). Masumoto and Welty (2009) note that the last 30 years in American education have been defined by, “our nation’s collective movement towards school reform, to increase overall achievement of all students while minimizing, and ideally eliminating, achievement gaps between subsets of students” (p. 2). For students with disabilities, this becomes even more critical. Jenkins, Schiller, Blackorby, Thayer, and Tilly (2013) examined positive relationships between using evidence-based practices and individualizing education programs for students in special education and noted a relationship did exist. Cook and Odom (2013) discussed the importance of evidence-based practices that work best when reinforced by a teacher’s willingness to implement them with fidelity.

Closing achievement gaps

One useful way to identify evidence-based instructional practices that work in closing achievement gaps is to conduct case study investigations at high performing high poverty campuses. To this end, Reeves (2003) has investigated 90/90/90 schools to shed light on schools having the following characteristics: 90% or more of students are eligible to receive free or reduced lunch, 90% or more of the students are members of ethnic minorities, and 90% or more of the students meet or exceed state or national academic standards in reading or math. Some of the common traits Reeves has found among such campuses include a focus on academic achievement; clear curriculum choices; frequent assessment of student progress with multiple opportunities for improvement; and collaborative scoring of student work (Reeves, 2003).

Similarly, Jensen (2009) provides a set of research-based strategies on how some high poverty schools are able to achieve their success. These include: data analysis, collaboration and cooperation among teachers, parents and adults directly working with the student, prioritizing reading instruction, and having clear and high expectations to achieve (Jensen, 2009). As reported by Lingo, Barton-Arwood, and Jolivette (2011), collaboration between general education teachers and special education teachers is a vital factor in improving students’ outcomes.

Students make academic gains when they are provided extra support for their academic skills (Deshler, Hock, Pulvers, & Schumaker, 2001). In order to be effective, high quality and targeted instruction should be more intensive than is available in the general education classroom setting (Fletcher & Vaughn, 2009). To make gains in reading, students need a well-
developed, structured reading curriculum that incorporates certain components such as phonics, vocabulary, reading fluency, and phonemic awareness (Odden, 2012). This is just as true for general education students as it is for students receiving special education services. According to Eriksson-Gustavsson and Samuelsson (2013), “reading and writing ability is supposed to develop and subsequently become a tool for continued life-long learning... developing the skills with which to function in a democratic society” (p. 174). Technology may also be a useful tool in teaching reading to students with special needs as it can provide individualized assignments for each learner (Marston & Deno, 1995). Jensen (2009) recommends a blended approach that incorporates technology support in conjunction with face to face reading instruction to help close achievement gaps.

Methodology

Information on Case Study Campus

The case study presented here is a qualitative investigation of one elementary school that performed above the state required standard in the area of reading for special education populations. Building on Reeves’ (2003) work as its theoretical foundation, this investigation began with the search for an elementary school in the Texas Education Agency’s Accountability Rating System Comparison Group (Texas Education Agency, 2013) in order to find a campus that had greater than 90% of special needs students passing the Reading portion of the STAAR test (which was our criteria for high performance) and at least 90% of students qualifying for free or reduced lunch (high poverty).

We identified one elementary school that met these criteria. In order to put the performance of special education students on this campus into context, it may be useful to compare their reading scores with those of their general education counterparts across the state of Texas. According to the Texas Academic Performance Report, 94% of special needs students on this campus passed the STAAR Reading exam, which not only exceeded the passing rate for all special needs students in the State of Texas (60% passing rate), but also far exceeded the passing rate for all general education students in the State of Texas (Texas Education Agency, 2014). It is important to note that this is not a one-time fluke. In fact, the special education Reading passing rate for this campus exceeded the passing rate for all general education students in the State of Texas in 2013 and once again in 2014. (Texas Education Agency, 2014). It was based on this data that this campus was identified and selected for case study analysis.

Data Collection Procedures

After obtaining Internal Review Board (IRB) approval, the school principal was contacted in order to request interviews with individuals who could speak to this campus’ success in teaching reading to students with exceptionalities. The principal agreed to allow a case study investigation of this campus’ success. In order to conduct a rigorous investigation, four strategies were used: interviews with administrators, interviews with teachers, researcher observations during campus visits, and member checking. Interviews were conducted with six key knowledge holders. These interviewees included a general education teacher, two special education teachers, an instructional reading coach, a vice principal, and the school principal.

Interviews were conducted using a semi-structured interview protocol in which six interview questions were asked of each of the selected participants. Having obtained consent from each participant, all interviews were audio recorded. The interviews lasted approximately 30 minutes each. At a separate time, a walk through was conducted of the campus, including observations of both general education and special education classrooms. Each research team member took notes which they compared following the interviews and site visit.

All interviews were recorded and transcribed for subsequent analysis. Teacher and administrator perspectives were compared to allow a higher level of triangulation against which to compare the findings. Member checking was conducted with follow-up visits and phone calls to ensure accuracy of the quotes and corroboration of theories developed by the researchers. Each of the researchers coded the transcripts independently before working together to identify common themes. Three themes emerged endemically from the data: collaborative planning; intensive reading curriculum with individualized interventions; and thoughtful scheduling of interventions and tutoring. The conversation now turns to an examination of each of these three themes.

Findings

Collaborative Planning

Everyone we spoke with on this campus seemed to take ownership of student achievement. Administrators, reading intervention specialists, special education teachers, and general education teachers don’t blame one another for failures. Instead they work together to come up with a plan based on student performance data. As the principal explained,
We plan very closely. The general ed (education) teacher and the special ed (education) teachers plan together. So at grade level meetings, our special ed (education) teachers do come, they are aware, they do know what the standards are. They assist with modifying the instruction to make sure that our special ed (education) students get what they need. I lead those meetings. I pretty much have a standing agenda which is always going to be data. [Moreover] lesson plans, that's one thing they have to always come with, their lesson plans. The teachers come with their lesson plans. That's always on my agenda... [we also look at] the pacing, where we are at, and then whatever data we may have.

Planning together on a weekly basis is a task in which everyone is involved. The teachers we spoke with agreed that the principal and vice principal on this campus are 100% committed to meeting with all the teachers every Tuesday to plan and analyze data. As the instructional reading coach put it, “[administrators] support them [the teachers] by meeting with them on a regular basis, going over data, providing different lessons, we brainstorm together, collaborate together.”

Intensive Reading Curriculum with Individualized Interventions
This campus has found a unique way to blend computer-based learning with face to face instruction. The campus has purchased two different reading intervention curricula and uses both to help close achievement gaps. Teachers utilize these software applications as tools to help assist in individualizing instruction to the unique needs of each student. They then work with students face to face both individually and in small groups to ensure student understanding. The first software tool which the interviewees spoke about was System 44, which is specifically designed to be utilized in combination with face-to-face instruction (Scholastic Research and Results, 2013). In speaking about this software tool, the special education teacher said, “[it] has been very helpful for a lot of students... in getting them to read... It’s a phonics based program teaching those phonics skills.” The instructional reading coach also talked about the value of having a reading curriculum that individualizes based on the student’s ability level, saying, “There’s a comprehension piece to it, but it’s mainly phonics and decoding at their level. Even though they’re assessed on grade level, this targets them (the students) at their own Lexile level.”

Another program that is used on this campus for the development of reading skills is Istation. As the special education behavior unit teacher stated, “We have a program that we use that’s computer-based called Istation. It gives me [the students’]... Lexile scores, and then it aggregates everything... and they go on it every morning... for 30 minutes.”

The general education teacher emphasized that this software tool, “gives them the specified instruction... at their own pace.” Moreover, the instructional coach accentuated that, “[it] tracks their progress in all areas in reading... and it moves them along. Then [the special education teacher] is able to pull small groups as well, to re-teach some of the things that... they didn’t quite grasp.” What appears to be working on this campus is a blended model which utilizes both computer based and face to face instruction.

Thoughtful Scheduling of Intervention and Tutoring
The third major theme that became apparent in this investigation was the scheduling of intervention and tutoring time provided to special education students. According to the vice principal, scheduling the time allotted for interventions in the right way was particularly important to the students’ for their reading level gains. “Scheduling our groups where they can be pulled, so we’re not interfering with any subject areas because our System 44 is an hour a day. It’s five hours a week of intervention... and it’s uninterrupted.”

On this campus everyone seems to help with tutoring. Tutoring was being done by the principal, vice principal, and counselor. As the vice principal noted, “During school, the... principal and ... [I would pull students. The counselor would pull students, so we did lot of targeted tutoring during school as well as after school. Then our principal would do Saturday school.” The vice principal went on to explain that Saturday tutoring was led by the principal himself. All fifth grade students were invited to attend. During Saturday school, the principal specifically targeted the areas of Reading, Science and Math, as these had been identified as the campus’ greatest area of need.

Reading support is scheduled for students receiving a wide variety of special education services. As the special education teacher indicated, “I have students from the ALE [Alternative Learning Environment], or Life Strides, as well as [students] from the BAC [Behavior Adjustment Center] unit, and [students who are] dyslexic”. It is important to note that with both pull out intervention and
instruction in the general education classroom, students with special needs receive twice the amount of reading instruction as general education students.

Limitations and Next Steps
As with any similar study, there are certain limitations to this particular investigation. First of all, the data accumulated involved the incorporation of one school in particular from the comparison group in the 2014 Accountability Rating System in Texas. This limits the findings because the researchers only have a single source of artifacts from which they obtained their information. Moreover, the particular interview process involved one visit and one set of observations. While we are confident that the data we collected was accurate as a reflection of a single case study, repeated observations on a wider group of similar campuses may yield somewhat different findings. In addition, the data obtained incorporated only feedback from professionals working directly with the students. It did not include the parent and/or student feedback on their success stories. This is important to note due to the fact that students and parents may provide pertinent information on their perceptions of program effectiveness.

In the future, the researchers would like to continue their investigations in how to better provide reading instruction to students with exceptionalities and to extend this to post-secondary readiness. Additionally, we are interested in expanding our research into examinations of practices at other schools with similar student populations in order to compare a wider variety of programs and practices.

Implications and Conclusion
This case study examined one high performing high poverty urban elementary school that has demonstrated success in teaching reading to students with exceptionalities. Three key findings emerged that led to this campus’ success: collaborative planning; intensive reading curriculum with individualized instruction; and thoughtful scheduling of intervention and tutoring. We believe the findings have potential implications for both researchers and practitioners. We believe it is vital that schools find a way to meet the reading needs of students with exceptionalities. Researchers provide a valuable service to the educational community by continuing to conduct case studies in high performing schools across the United States and internationally. Schools that are having difficulties providing successful reading instruction to students with exceptionalities may wish to explore the strategies presented within this case study (and other similar case studies) in order to determine if the findings may be transferrable to their own campus. It is hoped that this research may contribute in some small way to the growing body of literature into how best to provide reading instruction to students with exceptionalities.

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Historically, schools have been considered to be one of the safest places for American children; however, the rise in prevalence concerning the connection between bullying and violence (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001) such as shootings and suicide (Fein et al., 2002; Harlow & Roberts, 2010) have caused this feeling of safety to be called into question. Similarly, the efficacy of the many programs developed to prevent these bullying behaviors is suspect (Limber, 2006).

Bullying has been named as the most prevalent and pervasive form of victimization among children (Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003). Studies indicate that as many as 30% of adolescents report taking part in some aspect of it, either as the victim or the perpetrator (Beebe & Robey, 2011). Furthermore, studies suggest that bullying occurs more frequently in special education than general education (Rose, Espelage, and Monda-Amaya, 2009). Bullying has been defined over time in different ways, and according to one study, merely providing one of those definitions can cause changes in a person’s perception of whether or not they were actually bullied. Specifically, children tend to focus on the negative actions of others and perceive as being bullied. When researchers emphasized specific criteria such as repetition or imbalance of power, children reported less actual bullying and instead reported isolated incidents of aggressive behavior (Vaillancourt, McDougall, Hymel, Krygsman, Miller, Stiver, & Davis, 2008). Heinemann, a Swedish physician, was recognized as the first person to define bullying (1973). He stated that bullying has the characteristics of group violence that arises and halts quickly (Smith et al., 2002). The most universally accepted definition of bullying, established by Olweus, a leading expert in the study and research of the subject, is the intentional (Scaglione & Scaglione, 2006) exposure of a person, typically one who lacks the skills necessary to defend himself or herself, over time and in a repetitive fashion, to negative actions by one or more other persons (Dracic, 2009; Olweus, 1993; Slee, 1995). Furthermore, bullying behavior belongs to one of two categories: direct or indirect (Olweus, 1991) and must include three factors. These factors are: (1) the intentional harm of the victim by the bully, (2) inequity of power or strength between the victim and the bully, and (3) repetitive and continuous negative actions over time (Scaglione & Scaglione, 2006). This universal definition becomes important when considering whether current research is covering new forms of bullying (Vaillancourt et al., 2008), such as cyber bullying (Wang et al., 2010). There are several types of bullying. See Table 1 for examples for definitions and examples.

The prevalence of bullying continues to grow as the internet and social media sites become more popular and provide even more places for bullying to occur (Williams & Guerra, 2007). Cyber bullying, which is specifically defined as the intentional and repeated use of technology to cause harm or discomfort to another person (Ang & Goh, 2010), can be caused by a perpetrator unknown to the victim.
Cyber bullying is becoming more widespread (Rigby & Smith, 2011; Slonje & Smith, 2008) as children are discovering the many facets of technology, such as cell phones and the Internet’s many social media sites (Dracic, 2010; Raskauskas, 2010; Wang et al., 2010). Despite the prolific amount of technologies now available, traditional direct bullying continues to be the most prevalent form experienced by children (Ybarra et al., 2004).

Research has shown that bullying has long-term consequences for all involved (Dracic, 2010; Klomek, 2009; Raskauskas & Stoltz, 2007), and the number of types of victimization a person is submitted to is strongly related to the negative symptomology they experience (Mitchell et al., 2007) such as psychosomatic and psychosocial problems (Gini, 2007). This research supports the necessity of mental health screenings for both victim and perpetrator (Skrzypiec, Slee, Askell-Williams, & Lawson, 2012). Victims of bullying are likely to suffer an unintentional, physical injury immediately following a bullying incident due possibly to a lack of attention and concentration triggered by the aggression (Engstrom, Hallqvist, Moller, & Laflamme, 2005). Victims frequently exposed to bullying tend to experience more emotional symptoms (Skrzypiec et al., 2012) such as feelings of sadness, loneliness, (Harlow & Roberts, 2010; Wang et al., 2010) withdrawal, anxiety, and depression (Menesini, Modena, & Tani, 2009). Victims also typically experience negative thoughts of themselves (Hawker & Boulton, 2000), while reporting more medical injuries, sleep disturbances, and nervousness (Engstrom et al., 2005; Wang et al., 2010). Because of these adverse effects, victimization has also caused an excess intake of medicine by bullied adolescents attempting to self-medicate psychosomatic complaints. The concern lies in the negative effects the medication has on the child’s health combined with the negative effects of the bullying on the child’s health and how the two together will adversely affect the child’s overall and long-term well-being. This research further suggests that preventative measures for bullying are becoming increasingly essential (Due, Hansen, Merlo, Anderson, & Holstein, 2007).

Academically, students who were continuously subjected to bullying were deemed more likely to experience a drop in their grades and more absences, which in turn negatively affects their chances of making social connections among peers and school staff. When a student is unable to make connections or to feel connected with school personnel or peers, the alienation and stigmatism often associated with these students can contribute to adolescent risk behaviors with negative effects as well as adverse health effects. In other words, adolescents that have good relationships with peers and school personnel are healthier mentally and physically which leads to better choices (Bonny, Britto, Klostermann, Hornung, & Slap, 2000). A lack of connectedness and the negative symptomology it produces sometimes places adolescents in undesired risky situations. An especially strong correlation has been discovered between undesired sexual solicitation and negative symptomology, such as depression and substance abuse (Mitchell, Wolak, & Finkelhor, 2007). In other tragic cases, strong evidence has been discovered for a direct link between bullying and suicidal ideation, which has been discovered in children as young as nine years old (Klomek, 2007; Vang der Wal, Wit, & Hirasing, 2003; Winsper et al., 2012), and occurred more frequently in those who experience recurrent bullying (Skapinakis, Belos, Gkatsa, Magklara, Lewis, Araya, Stylianidis, & Mavreas, 2011).

Perpetrators are also likely to experience some of the same symptoms as victims, such as depression and substance abuse (Vaughn et al., 2010; Ybarra & Mitchell, 2007), academic difficulties and attendance issues (Ma, Phelps, Lerner, & Lerner, 2009); however, bullies tend to experience more conduct problems, namely callous-unemotional traits (Viding, Simmonds, Petrides, & Frederickson, 2009). Some of these traits include antisocial tendencies, a lack of prosocial behaviors, aggressiveness, hyperactivity, and a weak relationship between caregiver and child (Menesini et al., 2009; Olweus, 2011; Skrzypiec et al., 2012; Ybarra & Mitchell, 2004). In addition, some of the more common characteristics among bullies involve being previous victims of bullying, social rejection, and violence, coinciding with a lack of emotional warmth at home and a low socioeconomic status (Beebe & Robey, 2011). Typical behaviors of a bully are related to conduct disorder, oppositional defiant disorder, attention-deficit/ hyperactivity disorder, and depressive disorder (Kokkinos & Panayiotou, 2004; Vaughn et al., 2010). Studies suggest that in conjunction with these Axis I disorders, personality disorders, such as histrionic, paranoid, and dependent, are also typically present in bullies, and suggest that bullies can be impressionable and easily influenced (Coolidge, DenBoer, & Segal, 2004; Vaughn et al., 2010). Con-
sistent with these findings, Olweus (2011) reports deficits in the executive functions three broad areas in perpetrators of bullying. These three areas consist of decision-making; planning, organizing, learning and integrating information; and making appropriate social judgments. This finding further enhances an understanding of the prevalence of later criminality in bully perpetrators.

Due to the rising prevalence of bullying, shootings, and suicides, there is an increased desire to promote bullying prevention and intervention techniques (Burgess, Garbarino, & Carlson, 2006). Dan Olweus (1995, 2005) proposed that the most effective bullying prevention programs are those implemented by the individual, the classroom, and the school. One example of such a program is the Olweus Prevention Program, which seeks to diminish and eventually extinguish the aggressive behaviors exhibited by a bully through increasing caring and positive feelings from adults and teaching better ways to express emotions (Olweus, 1995). If this program is correct in the assumption that teachers should model caring positive behaviors, it is important to know if that is commonly practiced. In one study, only 25 percent of teachers reported specifically addressing the issue of bullying with their students, and typically only acted after an incident had occurred rather than attempting to prevent it (Dake, Price, & Telljohann, 2003). These same teachers reported the most effective intervention techniques they found were informing the parents of the bully, providing more adult supervision, and developing a solution to the bullying problem separately with the bully and the victim. The most ineffective interventions were preventive measures, such as creating a bullying prevention committee or informing parents of bullying prevention program. In another study, children were assigned the role of bully or victim and the children portraying the victim reported the most effective strategy to deal with bullying as assertiveness, while children portraying the bully reported retaliation being the most effective strategy. This suggests that intervention techniques should be different for each of the various roles in a bullying situation (i.e., bully, victim, bystander) (Camodeca & Goossens, 2005). Other studies suggest it is necessary for the schools to have a clear policy that defines bullying and provides tactics for preventing it (Smith et al., 2003). The assumption is if there is a clear and universal definition of bullying along with a set of guidelines, all adolescents will adhere to the rules and act accordingly.

Other studies show that bullies display varying levels of empathy (Ang & Goh, 2010; Jolliffe & Farrington, 2011). It has been suggested that males typically exhibit more bullying behavior than females, presumably because they possess lower levels of empathy than females. This suggests the need to tailor intervention programs specifically to each gender’s needs (Kowalski, Morgan, & Limber, 2012; Topcu & Erdur-Baker, 2012). Most bullying prevention programs have shown some success in providing an escape for victims, but short-term results have differed in decreasing bullying behavior, with no one program demonstrating significant results (Beran, Tutt, & Steinrath, 2004; Rahey & Craig, 2002; Sapouna et al., 2010). While there are numerous programs and strategies to prevent and address bullying, this article presents a few that have worked at the classroom level.

**Case Example**

Anne Jones teaches second grade, and in her classroom she has a student, Suzy, who routinely disrupts the class and displays bullying behaviors (i.e., hitting, kicking, name-calling, etc.). Mrs. Jones records her behavior for the first two weeks of class. After two weeks, she implements a new system consisting of a Self-Monitoring and class behavior contracts.

First, Mrs. Jones implemented a self-monitoring chart that she would routinely have her students check throughout the day. Second, Mrs. Jones noticed that Suzy’s behaviors were increasing in duration and intensity so she initiated a behavioral contract. She also immediately called a class meeting and held a student-led discussion concerning classroom behavior expectations. Mrs. Jones asked the students to identify positive behaviors to exhibit in the classroom towards others. She recorded what the students said on a large piece of poster board, along with a statement saying their plans for upholding the contract and had each student sign their name. Lastly, Mrs. Jones implemented a token economy in her classroom. She began distributing ‘Jones Cash’ (paper dollars she made) to students she witnessed exhibiting desired behaviors. At the end of a week, she allowed the students to cash-in their dollars at the Jones General Store on items such as the treasure box, extra recess, or save them up for ice cream with the principal. After two weeks, she noticed an increase in positive behaviors (respect, kindness) of all students and a significant decrease in the bullying behaviors that were problematic. Suzy’s behavior greatly improved with minimal supports. Below are summaries of the self-monitoring and behavior contracts implemented to assist Suzy.
Self-Monitoring

Self-Monitoring is an evidenced-based strategy easily implemented in a variety of settings. Self-monitoring increases student motivation to become independent and set and reach attainable goals. A summary of steps used to assist Suzy is provided below.

1. **Determine target behaviors.** Mrs. Jones, Suzy’s second grade classroom teacher, used a chart to determine the bullying behaviors Suzy was exhibiting most often. In order to manage the bullying behaviors effectively, Mrs. Jones sensibly outlined the targeted behaviors in assessable, observable, impartial format.

2. **Determine the frequency, duration, latency, and intensity of behavior.** The determination of behaviors prompted Mrs. Jones to design a behavior data collection system. Mrs. Jones recorded specific events, used interval/time sampling, latency recording and length of bullying behaviors exhibited recording. Mrs. Jones was able to establish a baseline, which provided a starting point for behavior goal setting. The frequency, duration, latency, and intensity of the bullying behaviors were all included in the baseline information.

3. **Select replacement behavior.** After Suzy and Mrs. Jones met one-on-one and defined and clearly outlined the bullying behaviors, a new, more desirable behavior was determined. The desired behavior was also clearly outlined and defined and involved Suzy’s input, which in turn increased Suzy’s motivation to move towards meeting her goals with the replacement behaviors. It was important that the replacement behaviors were used for the same purpose as the bullying behaviors.

In Mrs. Jones’ classroom, Suzy was frequently calling her classmates names, like ‘stupid idiot.’ After careful collection of data and discussions with Suzy, Mrs. Jones was able to determine the purpose of Suzy’s behavior was to gain attention from her peers, particularly because she desired her classmates’ attention. Mrs. Jones decided she needed to develop a replacement behavior that would gain her classmates’ attention in a kinder way.

Instead of moving around the classroom calling peers names, Mrs. Jones and Suzy developed kind words to practice using towards her classmates in order to gain their attention in a more positive way. It was imperative for Mrs. Jones to ensure that Suzy was still able to gain her classmates’ attention, or she may have lost interest or found the process to be unimportant.

4. **Determine self-monitoring system.** Just as data collection of targeted behavior can vary, so can data collection of replacement behaviors, or self-monitoring. Mrs. Jones’ self-monitoring system matched target bullying behaviors with goals that were aligned with replacement behaviors that were written out in terms Suzy could understand.

The most effective way for Suzy to monitor her bullying behaviors versus her replacement behaviors was event recording through use of a self-monitoring chart. This required Suzy to place a tally mark in the correct section every time she exhibited a replacement behavior throughout the day. Mrs. Jones carefully assessed the situation, selected the appropriate self-monitoring system, and worked with Suzy to make sure she understood the process thoroughly and knew how important it was to collect data correctly in order to move towards her goals.

5. **Set goals.** Mrs. Jones and Suzy decided on goals that used the data collected by the self-monitoring charts. Together, student and teacher agreed upon a goal that was both attainable and realistic. Mrs. Jones’ role was to facilitate Suzy’s goal-setting to ensure she did not aim higher or lower than appropriate goals and that the goals were attainable so that Suzy could experience success. See Figure 1 for a sample of Self-monitoring chart.

**Behavior Contract**

An undetermined number of schools have implemented the use of behavior contracts to ensure positive reinforcement of desired behavior (Hawkins, Kingsdorf, & Charnock, 2011). Behavior contracts can be implemented as a whole class or in a direct one-on-one setting. As a whole class, the teacher and students can devise a contract of acceptable behaviors, such as being respectful and kind. The entire class then signs the contract to hold each other accountable. Individually, specific student negative behaviors can be targeted and replaced with a positive behavior. Behavior contracts can provide students with more of a one-on-one support, structure, routine, consistency, and organization; likewise, they promote self-responsibility and accountability. This is one way to target and eliminate specific behaviors, such as bullying.

The whole class contract can contain language, such as being kind and respectful, which is in direct contrast to bullying. In the case of an individual case of bullying, the teacher will conference with the student and discuss the situation and how it could have
been handled differently. The two will create and implement a behavioral contract to target the specific bullying behavior (i.e. hitting, name-calling, etc.) and replace it with a positive behavior (i.e. being kind and respectful). The implementation of behavioral contracts has been linked with an increase in student productivity, on-task behaviors, and completion of daily assignments, as well as improved school grades and student self-control (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008).

Discussion
The purpose of this article was to share a few bullying interventions that can be implemented at the classroom level. Bullying has become a prevalent and widespread issue, which requires significant interventions to address and prevent bullying. Many prevention programs have been explored, but no significant improvements have been discovered. Some strategies and resources for dealing with in-class bullying that target both victim and perpetrators are self-monitoring, token economies, and behavior contracts. As illustrated in the case study, when Mrs. Jones implemented the strategies in her classroom, significant decreases in bullying behavior and increases in positive behaviors were seen.

References


Figure 1. Example of Self-Monitoring Chart

<table>
<thead>
<tr>
<th>Student: __________________________</th>
<th>Class: __________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: ____________________________</td>
<td>Monitoring ______________________</td>
</tr>
</tbody>
</table>

Directions: Next to each question, place a tally mark for every time you use the behavior during the day.

Did I use kind words?
Please:
Thank you:
I’m sorry:

Did I keep body parts and objects to myself?
Hands:
Feet:
Other objects:

Did I stand an arm’s length away?
From classmates:
From teacher:

Did I treat everyone fairly?
Include everyone:
Tell only the truth:

Notes: Total Yes:
Total No:
Total Partial:


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Incorporating Modern Professional Development to Enhance Pre-Service Teachers’ Knowledge

Dr. Laura Isbell and Dr. April Sanders

The United States federal government spends $2.5 billion on professional development (PD) each year. Once the individual states contribute, the number increases to $5 or $6 billion. Arne Duncan, the US Secretary of Education, argues they are misspent funds (Flannery, 2012). Teachers are being bombarded with a tremendously mixed signal to make their classrooms more engaging and include 21st century skills, yet the learning provided to them is nothing short of archaic at best. Teachers are provided PD opportunities a few times of year and typically sit in large rooms and listen to a speaker who is considered an expert. Another stumbling block to this current model is money. School districts do not have the resources to continually train large numbers of teachers and keep them current on educational technology trends. As a result, many teachers have resorted to spending their own money for training.

One change taking place in some areas of education with creating professional development opportunities that meet the needs of teachers as well as work within the constraints of school schedules and local funding, and online environments have these benefits (Tinker, 2003). This evolving new format for PD is based in allowing teachers the ability to customize to their own learning needs, fit learning into their busy day, and afford the costs. Historically, teaching has consisted of transmitting information from the main source to the recipients (Dawley, 2009), but social media has allowed for connections to occur that transform that older model. As technologies change, the ability to and ways of connecting transform as well. Engagement and usefulness have been shown to be key for greater teacher participation (Kwakman, 2003), and online environments could tap into such vital aspects of quality PD.

**Literature**

The literature does not contain extensive research about the effectiveness of online PD or the experience teachers have when learning online, but one recent study provides interesting results on the topic. One recent study on the effectiveness of online learning compared the two modalities of face-to-face and online PD with a group of teachers learning about and implementing a new science curriculum. Teachers in both groups had the same access to computer-based simulations and print support materials. No significant differences were found between the two modes. Researchers used video of classroom teaching to assess strategies being implemented as well as testing teachers’ knowledge in the content area and evaluating student assessment scores (Fishman, Kostantopoulous, Kubitskey, Vath, Park, Johnson, & Edelson, 2013). The perspective of preservice teachers when evaluating online PD is absent from the literature. Additionally, the literature does not fully explore online PD benefits in relation to connected learning theory. The anticipated benefit from this study is to add research about preservice and inservice teachers’ PD experience in an online format to the literature about online PD and connected learning theory. This study’s finding do not suggest that traditional PD is outdated and should be abandoned, but the results do open the door for educators to explore that options are available for quality PD and learning.

As teachers work with new options for PD, preservice teachers can also work with these new avenues and begin to understand how to shape their own learning as a future educator. Preservice teachers should be able to have knowledge about, be able to evaluate, and implement new and emerging technology. To effectively meet these standards, educational technology courses can include an additional component of helping preservice teachers understand how to constantly expand their professional learning networks (PLNs) to access on-going professional development. Technology is rapidly changing, so to simply teach current technological applications used in education does not truly meet the depth of the standards assigned to educational technology courses nor does it prepare preservice teachers for their future classroom environments. Learning about current technology is helpful, but transforming courses to help preservice teachers learn how to create their own network of connections and training about technology is crucial to their success as a teacher in a modern classroom.

The conference, Connect 2 Learn (C2L), was created in response to these concerns related to technology PD for educators. The conference has online sessions showcasing the knowledge of K-12 teachers, preservice teachers, and higher education faculty. The sessions focus entirely on how technology is enhancing instruction in the K-12 classroom. Sessions are orga-
nized by topic and published online on the C2L website. Educators can access these sessions at any time after the conference sessions are available. The creators of the conference are preservice teachers enrolled in an educational technology course and include both elementary and secondary majors. The course was transformed from students simply learning about current technology available to teachers to a course where students partner with area teachers to create a free online educational technology conference.

Theoretical Framework
Connected learning theory is one lens to view research related to the C2L conference; this theory encourages open access to learning that is interest-driven and socially connected. An important aspect of connected learning theory is the ability for the learner to gain knowledge as well as establish a network of support in the learning process (Ito, Gutierrez, Livingstone, Penuel, Rhodes, Salen, Schor, Sefton-Green, Watkins, 2013). Learning in a connected environment has the potential of creating an educated and learning society (Sims, 2008). Since there can often be a gap between traditional and non-traditional learning opportunities, digital media plays a vital role in connected learning theory by providing an easy link to a network of those with shared interests as well as valuable information. From those connections, new concepts and knowledge can emerge that might not be discovered in traditional formats (Kays & Francis, 2004). Even though the use of media may vary, learners are using these modes to support a connected learning experience (Andrews, Tynan, & James, 2011). Digital media is used in connected learning to offer engaging formats, increase access to knowledge and information, and provide support through social media, and provide a diverse range of expertise. The theory is a link to understanding learning that is growing out of technological, social, and cultural changes (Ito, et al, 2013).

The framework for connected learning has a particular context that is needed for learning to happen. That context should include peer support, interest, and be academically oriented. Learners are able to grow within the knowledge they are gaining when they can have quality exchanges in a social setting about topics that are interest-motivated. Once those two aspects are brought together in an academic setting, the connected learning can flourish (Ito, et al, 2013). The process of connecting learners is also starting to evolve. Social media allows teachers to construct a PLN that reaches far beyond their own campus or those few PD presenters that their school district provides each year. The 21st century requires educators to collaborate and use a collective intelligence along with smart tools, yet to do this effectively, we must employ what Gee (2013) calls synchronized intelligence, which is a way of organizing people and tools to effectively contribute and solve problems. Online PD can be organized in such a way that contributors can be connected to one another through social media after making initial contact in an online environment. These connections can last and provide teachers with the ability to access more knowledge and clarifications. Online communities can help teachers interact and support each other as they implement new strategies or use new tools allowing teachers reflective interactions they cannot find in the course of a normal school day (Schlager & Fusco, 2004).

Methodology
This qualitative study examined how participants view the online professional development experience opposed to a more traditional face-to-face learning environment. Connected learning theory guides this part of the study as themes emerge from questionnaire responses. Data were collected using a questionnaire available on the C2L website to those attending the online conference. Participation was strictly voluntary and not required to attend the C2L conference. This study is most closely related methodologically to Merriam’s (1988) definition of a qualitative study in that assessing the professional development experience cannot be measured fully in the format of the positivist quantitative inquiry.

Participants included preservice teachers enrolled in the educational technology course that was organizing the C2L conference. Additionally, teachers currently teaching in K-12 schools were invited to participate in the conference and given the opportunity to complete the questionnaire for the study. Over the span of two years (and two conference cycles), data were collected from an online questionnaire with a total of 85 participants completing it. The 85 participants included: 62 preservice teachers and 23 teachers currently teaching in the K-12 classroom. None of the participants had previously participated in online PD, so they could only compare their experience with the C2L Conference to traditional PD.

Research questions for this study about preservice preparation and implementation of online professional development:

RQ1: How does the online PD conference experience meet the four ways connected learning theory uses digital media for learning? (Ito, et al, 2013)
RQ1a: Engaging Formats: How do participants view the online PD experience in comparison to traditional PD?

RQ1b: Increase Access to Knowledge and Information: How does participation in planning PD affect preservice teacher participants’ view of PD?

RQ1c: Support Through Social Media: How do participants view the growth of their PLN related to participation in PD and related social media?

RQ1d: Provide Diverse Range of Expertise: What diversity in experience is provided by the presenters?

Results

The questionnaire from the participants was the primary data source (n=85). Using the descriptive coding method (Miles & Huberman, 1994; Wolcott, 1994), each answer to the open-ended questions on the questionnaires were given descriptive codes summarizing the responses. Descriptive coding “summarizes in a word or short phrases – most often as a noun – the basic topic of a passage of qualitative data” (Saldana, 1994, p. 70). All of the participants answered the same questions, so themes found in the results were grouped according to the connected learning theory tenets after the descriptive coding was complete. Then the 6 main principles of connected learning theory (interest-driven, peer-supported, academically-orientated, production-centered, openly networked, shared purpose) were coded within themes. See Table 1 for the themes related to the participants’ questionnaires as it relates to the connected learning theory.

As table 1 illustrates, the key tenets of connected learning theory were derived from the principles of the theory. The responses on the questionnaires were coded according to these key tenets in order to find the themes. Those specific themes were evident in the majority of responses from participants.

Engaging Formats

When comparing the online PD experience to traditional face-to-face PD, the participants had similar outlooks. Choice and convenience were discussed in the majority of responses. Participants discussed how they might have numerous options for sessions at a traditional conference, but typically, PD held on a campus or within a school district is quite limited. One participant explained, “With traditional PD, you spend so much time learning about things that you may not have an interest in or you may already know a lot about. With online PD, you have the option to choose what to learn more about.” Alongside choice, most participants discussed convenience as a positive with their online PD learning. Participants talked about how when they think of attending a conference, the first thing that comes to mind is lectures or presentations in a cold ballroom. They further explained that being able to sit at their own computer in the comfort of their own home made a difference in their motivation to want to attend the conference. The time factor of attending the online PD and pausing to come back later was important, as one participant explained, “I didn’t have to drive somewhere and be at a certain place at a certain time. I could see it whenever I was ready.” They could take a break and come back to the conference to finish watching videos. While the participants did not want to classify traditional face-to-face conferences as negative or unnecessary, the C2L conference gave them a new way to learn in professional development: “I never thought that

Table 1. Connected Learning Themes Related to Participants’ Questionnaires

<table>
<thead>
<tr>
<th>Themes Found in Data</th>
<th>Connected Learning Theory Key Tenets</th>
<th>Principles of Connected Learning Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding answers to similar questions; Focused on interest; Time and place availability; Engaging in content multiple times</td>
<td>Engaging Formats</td>
<td>Interest-Driven; Production-Centered</td>
</tr>
<tr>
<td>Value of connections; Ease of sharing links and information with others</td>
<td>Increase Access to Knowledge and Information</td>
<td>Academically-Oriented; Shared Purpose</td>
</tr>
<tr>
<td>Creation of PLC; Understanding a modern PLC</td>
<td>Social Media Support</td>
<td>Openly networked</td>
</tr>
<tr>
<td>Redefining expertise</td>
<td>Diverse Range of Expertise</td>
<td>Peer-supported</td>
</tr>
</tbody>
</table>
I could attend a conference while at home and it is amazing to think that I was able to make connections and learn professional development from the comfort of my own home.”

Learning engagement in the online PD environment opposed to the traditional one was described by the participants as higher in the online format. Traditional PD was described as typically not very exciting or interactive where participants often lose focus. Others explained that the online PD was engaging because they could come back to it and rewatch or relern something: “If you listen to a presenter in traditional professional development, it is possible that they will tell you something interesting, and you may forget the information that they were talking about, but with an online experience you have the opportunity to refer back to the website to look at the information as often as needed.” Interest also could change over time and with online PD, the participants explained they could come back to the website and learn. Some suggested that they would like to have traditional PD “enhanced” by online PD, so that they could refer back to information when needed.

Increase Access to Knowledge and Information
Preservice teachers who assisted in the planning of the C2L Conference responded to questions about their involvement in the process. The consistent remark among all participants answering this question was they felt overwhelmed with the possibility of planning an online conference when they were first introduced to the idea, but as time passed and they approached it task by task, then they realized how much they had learned. That learning process was demonstrated in the many participants who talked about how “planning the conference was a form of professional development in itself because I [they] collaborated with class members from different content areas to come up with ideas that are worth sharing with teachers.” Part of the planning meant they had to change their own views of PD; most of the participants explained they were thinking about teachers who would only have time to visit the online conference during their prep time or lunch break and wanted them to get as much information as possible in brief periods of time. To do that, they had to get creative with ways to compact quality information: “I was the bland “only-use-PowerPoint” type of preservice teacher. Now, I feel like a completely new person in knowing how to present information in an engaging way to other teachers!” These changes lead to pride in their work since “all the videos were created for teachers by a teacher.” Many believed the conference would have a lasting impact, and they were proud to be part of it: “Although there was a lot of work done by many people, this conference is something that will have an impact on many educators, not just those who submitted proposals.”

In addition to focusing on the planning part of the conference, the participants detailed how they told others about the conference. These interactions with other professionals in their network had positive effects on the participants; they believed in the quality of the conference and wanted others to experience this PD:

- “The site was easy to navigate and I told all my friends that work in the school system about the C2L Conference. I insisted that they log on and take a look. Many of my friends have since contacted me and told me what a great site it is. They are using some of the ideas in their classrooms now. It is such a great feeling knowing that you are part of something that helps others in their classrooms.”

- “After mentioning the conference to several friends, which spans across three different states, they all had positive things to say about it. They could not believe that I actually took part in something like this. Many of them also mentioned the conference to several of their coworkers, and they viewed the conference as well.”

- “One of the things that a friend implemented in her classroom after viewing the conference was the use of QR codes in her classroom. It is something that she had been wanting to do but just never took the time to actually do it. She told me after viewing the QR codes section it gave her that push to do it. I helped with something that gave her that push!”

- “I happened to have been on the phone with my aunt who is Media Center specialist at a public elementary school in Miami, Florida. We began talking about what I was doing in class, and the topic of the C2L website came up. I explained to her what it was, when it would be launching, and how she could be a part of it by submitting proposals when the website was up, and she was so excited. My aunt went on to tell her fellow educators about this, and now has my C2L sticker on her car!”

Support Through Social Media
A social media presence is built
into the C2L Conference. Beside each presentation on the C2L Conference website, the Twitter call sign is posted. Several preservice teachers work together to create Pinterest boards related to the conference, and they are pinning throughout the semester. Additionally, the C2L Conference has a Twitter and Facebook feed that is posting regularly about educational technology. Preservice teachers who were helping organize the conference create the social media posts.

Because of the connection to social media, participants were asked about any connections made as a result of the conference and their “eyes were opened to a whole new world of useful tools and advice.” The Pinterest boards were mentioned in most responses as useful or helpful in finding resources or ideas, and most reported there were “so excited to use it in the future.” When commenting on their use of Pinterest, they liked how “the tools, pins and websites [we] found can be applied to all sorts of classrooms and teachers.” Participants did not talk about making connections with other educators directly through Pinterest; instead they saw the boards as a connection to ideas and information with numerous comments about how it “would be a wonderful tool for other teachers or other pre-service teachers to follow and use to their advantage.”

Most participants reported making one or more connections through social media due to the conference: “One thing I loved about this conference is that for each video submission, there was a twitter call sign right around the video. This allows me to find the person that created the video on twitter and continue to connect with them on a personal level and allows me to connect on a professional level. I can connect with them on a professional level on social media because I can message them and ask them about other ideas that they have for the classroom. I can also see different links or ideas that they post using their social media. I know that I personally started to follow some of the people from the C2L conference to learn more about their ideas for education and the classroom.” They are now following presenters on Twitter and explain they “now have a plethora of information at the click of a button. I [They] can go to any of these twitter pages and see if I find anything new, and that is really useful.” Following presenters was common among the participants, but many also believed that these connections added to their PLC and remark, “they can easily be mentors for me through social media. The connection I’ve made with them will quickly build my professional development, and help me to find a job and to become a better teacher.” By expanding the reach of their learning community, they were able to learn how to collaborate with other educators to learn new ideas or methods of teaching. Through such sharing, they talked about how they made connections with others based on similarities within the field: “I was able to see what it is like to contribute my ideas about technology and share them with other people that may have the same view as I did.” The PLC was even expanded within their peer group because they were able to connect with them in a social media environment as well as face-to-face: “Following my fellow peers is helpful because these are the people I am learning with now and who I will be collaborating with in my field. They will be the people to turn to and grow from. Twitter helped me learn more about them and the messages they wish to spread in the world of education.”

Diverse Range of Expertise

The C2L Conference only has one requirement for presentations; it must be connected to educational technology. Having a wide variety of teaching levels and content areas as related to various technologies that can be used in the classroom allowed a more expansive way to do a conference. Members of the editorial review board view the presentations and choose which ones will be part of the C2L Conference, and they provide feedback to those who submit a proposal whether or not it is accepted for the conference.

The participants commented on the variety presents in the types of presenters, topics or strategies, and grade levels. They believed this variety would not be present in traditional PD: “This gives the people who want to view the presentations in the conference a wide variety of videos and information to view and to pick from, something one might not be able to do at a face-to-face professional development.” The variety in presenters was important to participants because they believed it expanded their educational horizons. In traditional PD, the participants said they were not typically able to hear from teachers or preservice teachers in other areas of the country: “By participating in this conference, I was able to view people’s presentations from all across the country thus furthering my professional development much better and quicker than if I had merely relied upon speaking to educators who resided in the same vicinity.” By being able to connect with presenters from different content areas or grade levels, they found new ideas and “many new tools [I] did not know about before watching the conference because I usually don’t work with anyone outside of my chosen area.”
Further Implications
Further research could be done to examine learning results or actual application of learning between online and traditional PD. Ultimately, this research shows that PD can be enhanced or changed somewhat to accommodate our changing technologies. One participant explained how including such changes in PD made a difference: “Classrooms in 2015 are not the way they were in 2006. I was stuck in that 2006 classroom. I did not know about different technological uses until this conference. I do not want to be a teacher in 2006, I want to be a teacher in 2017.”

Conclusion
Pre-service teachers expressed ease and convenience with an open-access venue to enhance professional development. As classrooms change, professional development styles should change to support teachers’ instruction and students’ learning. Professional development does not have to completely change, and not all PD is useful in an online environment, but this study demonstrates that online PD can be a useful tool in some situations and help teachers make connections they normally could not or would not make in traditional PD settings. Although this study has provided insights into pre-service teachers’ use of PD it has only begun to unveil the importance and value of implementing and using modern PD methods.

References


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Impact of Collaborative Teaching on K-12 Mathematics and Science Learning

Dr. Tonya Jeffery, Dr. Cherie A. McCollough and Ms. Kim Moore

A national effort is underway to transform teacher education program practices and produce effective and highly qualified teachers for 21st century classrooms. This effort prescribes providing preservice teachers (PSTs) with authentic clinical experience in the field that connects what is taught in teacher preparation programs with what they do in the K-12 classroom. Bridging the gap between theory and practice requires teacher education programs work in partnership with school districts, redesigning teacher training to better serve prospective teachers and their students (NCATE, 2010).

Efforts are also underway to reform K-12 mathematics education (CBMS, 2010) and science education (NGSS, 2013). The Mathematics and Science Partnerships (MSP) established by the National Science Foundation (NSF) and the U.S. Department of Education (DOE) brings together teachers, mathematicians, and mathematics educators, illustrating the potential of such collaborations to improve teachers’ practices, their understanding of mathematical knowledge for teaching, and their students’ learning (Mathematical Sciences Research Institute, 2009). The Principles to Actions and Next Generation Science Standards (NGSS, 2013) provide an opportunity for educators to change their practices in order to enhance the learning of mathematics and science concepts for all students (National Council of Teachers of Mathematics (NCTM), 2014; NGSS Lead States, 2013). However, this can present challenges for PSTs as they begin to learn about these standards and try to apply them to classroom teaching. In addition, incorporating inquiry-based teaching and learning through hands-on, minds-on activities can also be a daunting task for inservice teachers, especially with tensions involving state and district mandates, high-stakes testing, and accountability policies. These challenges often influence teachers’ desire to implement engaging lessons that allow K-12 students to show their innovation, creativity, and imagination in disciplines like mathematics and science.

Ideally, PSTs should not only hear about evidenced-based practices, but should see them being taught and modeled in a K-12 classroom. Many elementary generalists (EC-6) are uncomfortable with teaching mathematics and science and are more likely to avoid these subjects (Newton, Leonard, Evans, & Eastburn, 2012). Furthermore, some teachers conduct science and mathematics activities without understanding the process behind those activities (Windschitl, Thompson & Braaten, 2007). There is a great need for teachers who are strong in both content and pedagogy, especially at the grades 4-8 level. Professional development for preservice and inservice teachers is most effective when it is hands-on and when it takes into account local context (Darling-Hammond, 2009). Still, many inservice teachers have attended external professional development events regarding best practices, but have not actually seen them modeled in the classroom setting. The National Council for Accreditation of Teacher Education’s (NCATE) Blue Ribbon panel on clinical preparation and partnerships has noted the critical role of field experiences in the development of PSTs and new teachers and praised co-teaching as a model for linking theory and practice in preparing teachers to teach (NCATE, 2010).

Co-teaching occurs when the mentor teacher and preservice teacher work together in the planning, delivery, and assessment of instruction. Such co-teaching narrows the gap between theory and practice, develops pedagogical content knowledge, and fosters reflective practice (Murphy, Scantlebury, & Milne, 2015).

As STEM faculty educators working to prepare the next generation of highly qualified teachers, we are part of a school-university partnership seeking to bridge the gap between theory and practice by implementing best practices in the elementary and middle school classrooms. This article provides evidence-based data on the utility of a STEM site-based professional development program, the Elementary Teachers Engaged in Authentic Math and Science (ETEAMS) program (Jeffery, McCollough, & Moore, 2015). It discusses the ETEAMS program’s professional development organizational model (see Figure 1), the benefits of co-teaching, and how the program’s innovative strategies have led to increased student achievement and more well-prepared beginning teachers.

The article then highlights one of the ETEAMS lesson plans collaboratively developed by the school-university partners. The inquiry-based lesson utilizes the 5E learning cycle (Bybee et al., 2006) and helps fourth and fifth grade students develop mathematical problem-solving skills, critical thinking skills, and content knowledge while learning about the concepts
of measurement and conversions.

Program Description
The ETEAMS program is a 3-year initiative funded by NSF. This collaborative program brings together preservice and inservice teachers, grades 4-8 students, teacher education professors, and research scientists, with the purpose of increasing student achievement, confidence, and interest in mathematics and science. Working in close partnership with school districts, it also seeks to revamp teacher preparation and better serve prospective teachers and the students they teach by enhancing teaching and learning in grades 4-8 with innovative instruction. Three sites – two elementary and one middle school – serve as professional development schools for the education, research, and teacher preparation components of the initiative. All are situated in low, socioeconomic status (SES) urban areas, with predominantly Hispanic populations of students who are underrepresented in the STEM fields. When this initiative began, all three schools were in ‘Improvement Required’ status (students failed to meet minimum test scores on state standardized exams) according to NCLB. These schools needed research-based strategies to improve competencies in mathematics and science teaching and learning.

This transformative professional development model provides authentic experiences in mathematics and science to enhance PSTs’ content knowledge, pedagogy, and self-efficacy in teaching these disciplines. The model consists of four components (see Figure 1): 1) common planning 2) STEM Thursdays 3) certification workshops and 4) authentic research experiences. The ETEAMS STEM Thursday component is featured in this article. The goal of STEM Thursdays is to increase content knowledge, self-efficacy, and interest in 4-8 students as well as preservice and inservice teachers.

A unique feature of the ETEAMS program is its professional development organizational model. Here, PSTs collaborate with inservice teachers and university STEM faculty to plan, deliver, and assess high-quality, inquiry-based, hands-on integrated math and science curriculum to grades 4-8 students during STEM Thursdays. The facilitation of collaborations
by university faculty, team teaching of STEM Thursday lessons by preservice and in-service teachers and university faculty, and the supervision of preservice teachers before, during, and after STEM Thursday lessons by university faculty, have been critical to increasing student achievement in math and science, improving PSTs’ self-efficacy, and to the initial success of the program at the partner schools, as outcomes show.

Research Questions
As a MSP project, the ETEAMS program was driven by research questions informed by the theoretical framework surrounding the social cognitive approach to teacher education. The research questions emphasized for this article are: 1) To what extent does participation impact math and science performance among 4-8 students?, and 2) To what extent does participation influence the self-efficacy in grades 4-8 STEM content and STEM interest in grades 4-8 students and teachers?

Methodology
This mixed-methods study analyzed elementary and secondary preservice teachers’ self-efficacy in teaching math and science to grades 4-8 students during the implementation of the STEM site-based professional development (PD) program as well as the 4-8 students’ performance in math and science. It also looked at 4-8 students’ interest and self-efficacy in math and science. The study employs quantitative data from state assessments in math and science as well as STEM Thursday post-teaching surveys. Qualitative data was retrieved from group interviews, individual semi-structured interviews, classroom observations, and STEM Thursday post-teaching surveys.

Participants
Context of the study
The College of Education teacher preparation program is part of the professional development schools (PDS) model that features inherent and rich collaborations between the P-12 schools, districts, and university faculty. During the final year of the teacher preparation program, PSTs complete a required yearlong field experience. The first semester of PSTs’ field experiences is the field base course, which focuses on the pedagogy and professional competencies of teachers. Students complete a general pedagogy course, which does not supply a sufficient amount of information for the specialized needs of the math and science disciplines. A K-12 school campus (partner school) hosts the field base course on-site at and taught by a university site professor. The PSTs spend two days per week for 14 weeks working with their university site professor on pedagogical skills, and time in assigned K-12 classrooms implementing teaching strategies and techniques with students. Coteaching with their mentor teacher is a significant feature of the teacher preparation program (Educator Preparation Handbook, 2013). The second semester of field experiences is the student teaching semester, in which the PSTs spend five days a week for 14 weeks in a partner school.

The ETEAMS program was offered to PSTs interested in increasing their math and science content knowledge in grades 4-8. The PSTs participated in this research study during their required yearlong field experience. In addition to completing the course expectations during field basing and student teaching, participants met after school to plan three inquiry-based lessons for STEM Thursday. The research participants were assigned to research partner schools and took their field-based courses over consecutive Fall-Spring semesters. The first author taught one of the field base courses during the fall and spring semesters in which some of the participants were enrolled. There are approximately 25 PSTs per year participating in the ETEAMS program.

STEM Thursday Model
Each semester, three to four STEM Thursdays were planned at each of the partner schools. During STEM Thursdays, preservice and in-service teachers along with university faculty collaborated in planning and delivering hands-on lessons in mathematics and science. A team teaching model was used where all the adults were actively engaged with students throughout the lesson. At the elementary school level, lessons were taught in 3rd, 4th, and 5th grade classrooms to between 125 and 250 students a day. At the middle school level, lessons were taught in 6th, 7th, and 8th grade to approximately 600 students. At each school, approximately 12 teachers were divided into teams of 3-4 people to plan and deliver instruction for a targeted grade level.

Planning for STEM Thursdays began with the statewide objectives along with the district’s scope and sequence. Two planning meetings took place prior to the implementation of these lessons. At the first meeting, the in-service teacher shared the topics that have already been taught, so that everyone was aware of what prior knowledge the students are bringing to this lesson. This project uses the 5E model of inquiry-based instruction to develop lesson plans (Bybee et al., 2006). The goal of the first planning meeting is for everyone to leave with an outline of each of the parts of the lesson: Engage, Explore, Explain, Elabo-
were made on the spot about what pieces needed to be removed or perhaps completed the following day due to time constraints. At the end of the day, all of the collaborative teaching teams met to reflect on what worked well, what did not work as planned, and ways to improve the lesson. The university faculty guided the preservice teachers in conversation about engagement and student learning. We believed this collaboration in planning, teaching, and reflecting fostered continuous improvement in the preservice teachers’ professional development and helped them make sense of the intersection between theory and practice. In addition to the face-to-face reflection session, an electronic evaluation was sent out after each STEM Thursday to the preservice and in-service teachers. This assessment of the STEM Thursday lesson implementation provided quality feedback to the project faculty and directed the project’s improvement for future STEM Thursday events. It included the following questions, which the respondents rate on a scale of 1 to 6: (1) How engaged did the students seem during the presentation? (2) Was the presentation at an accessible content level for the students? (3) Did the presenters seem prepared? (4) Did the presenters seem to have a strong understanding of the content? (5) Did the presenters support students to experience success? (6) Was this presentation a good use of class time?

Gallon Man Goes to Space
The Gallon Man Goes to Space is a STEM Thursday lesson that was taught two consecutive years at different elementary school sites in 4th and 5th grade with modifications following the first year. Planning began with the following math objectives that included measurement and metric conversions, measurement of length, width, time, liquid volumes, mass, and money using addition, subtraction, multiplication, and/or division as appropriate.

At the initial planning meeting, teachers utilized the National Council of Teachers of Mathematics (NCTM) Illuminations Lesson, ‘Water, water,’ as a resource, and they adapted the material to fit the grades 4 and 5 learning objectives. The lesson began by engaging the students with the following questions: “What are some uses of water in our everyday life?” and “What is your estimate for how much water the average American uses in space every day?” To assess prior knowledge, the teachers asked the students the following questions:

- What units do we use to measure volume?
- What is the relationship between cups, pints, quarts, and gallons?

After a group discussion, the teacher informed the students that in space, astronauts are only allowed to have 6 gallons of water per day. She asked the students to think about why they have this limit as they watch a NASA video clip on an astronaut brushing his teeth in space.

The students then explored the following problem to continue their investigation of the relationship between capacity measurement units: “Given that the astronauts are allowed 6 gallons of water in space, how many cups of water would the astronauts be permitted to take?” In groups, the students (with the help of a team member) were given the following tools: a cup, a pint, a quart, and a gallon. The students poured cups into pints, pints into quarts, and quarts into gallons, discovered the relationships between each unit of measurement and worked on a so-
olution to their problem. The lesson continued with the whole group explaining what they have discovered. Then they used this information to create a three-dimensional (3D) gallon man. An empty gallon of milk is the starting piece for building the gallon man. Using Velcro as an adhesive, four quart oil containers were added to represent the arms and legs. Eight sixteen-ounce cups (pints) were then attached to the quarts to create hands and feet. Finally, sixteen eight-ounce cups were attached as fingers and toes (see Figure 2).

After the students explored conversions using hands-on materials, they explained what they have learned. Students watched a video, ‘A Cup Grows Up’ to reinforce the learning of the measurement equivalencies through a song. The video adds to the students’ content knowledge by showing that there are eight ounces in a cup. After the video, the students completed their gallon man astronaut individually.

During the elaboration phase of the lesson, students were ready to look at the mathematical relationships between the different units of measurement. One of the teachers led the group in completing the first table. Students were looking for patterns to find the rule that governs the input and output columns on their tables. In some cases, students needed to work backwards. They had the rule and needed to determine what units of measurement would follow that rule. For example, on one chart they saw that four _____ is equivalent to one gallon. They needed to fill in the heading ‘quarts’ for that column. In the 5th grade version of this lesson, the students also answered two-step word problems relating to astronauts’ water usage in space. One of the questions from this handout asked:

*It is recommended that each astronaut drink two quarts of water per day. Andy has consumed 16 gallons of water. Assuming he drank two quarts per day, how many days has Andy been in space?*

The lesson ended with an evaluation. The second year a PowerPoint with multiple-choice questions was added to help students prepare for standardized tests. The teacher led the whole group in responding to these questions. In order to maintain a high level of engagement and active participation among all students, the teacher encouraged the students to respond to the questions by tapping their desk (once for A, twice for B) or by holding up their fingers (one finger for A, two fingers for B). If the teacher had access to a classroom response system, that could be used as well. After each question, students were called upon to explain their reasoning to the whole class. The questions incorporated the greater than and lesser than sign, which students have previously learned. As students were responding to these questions, the teachers were formatively assessing knowledge acquired during this lesson.

**Results of Gallon Man Lesson**

The process of collaborative planning, teaching and evaluating led to an engaging lesson that students were able to enjoy and learn. The real world context of the lesson allowed students to make connections while learning new materials. While the responses to the evaluation survey were positive overall, the data gathered revealed consistent growth between the first and second years. When asked,
“How engaged did the students seem during the presentation,” in year one, 40% of the teachers responded with a 4 and 60% responded with a 5. In year two, the 28.6% of the team said 4, 42.9% indicated a 5, while 28.6% answered with a 6. When responding to the question, “Did the presenters support students in experiencing success,” year one 20% indicated a 4, 20% a 5, and 60% a 6. In year two, 100% of the responders gave this question a 6.

Comments added to the quantitative assessments included, “I loved the integration of several different content areas including measurement, multiplication, division, as well as science.” Another reported, “This was a good way to combine several objectives (measurement and tables).” When giving feedback on the revised lesson in year two, an inservice teacher commented, “College students were great at asking probing questions and making the elementary students think!”

The Gallon Man lesson incorporated one of the eight mathematical teaching practices recommended by the NCTM (2014), which is using and connecting mathematical representations. Students gained a deeper understanding of the relationships among capacity measurements through two and three dimensional models. In addition, they experienced the connection between measurement units by actually pouring water and transferring the water from one container to another. Since the lesson was grounded in a real world problem of water in space, the students were able to make connections between science and mathematics as well as see how their learning has applications outside of the classroom.

### Results of STEM Thursdays

Standardized test scores among the partner schools consistently increased during the two years of this project. In grades 5 and 8 math, the passing rate the year prior to the implementation of this initiative was 43%. This increased to 59% in year one and 67% in year two. In grades 5 and 8 science, the baseline passing rate was 42%. This increased to 58% in year one and 63% in year two.

During individual interviews and a focus group led by an external evaluator, preservice and inservice teachers had the opportunity to reflect on STEM Thursdays. They reported collaborative planning led to a sense of ownership and increased confidence. The PSTs said:

> We actually design the lesson. Of course, we get the TEKS from the teachers, but we design the lesson, we design the—the activities and then we—in turn teach it to our individual classes.

The STEM Thursdays are really helpful because we get to collaborate, and like I said, Dr. Anderson and Ms. Smith (pseudonyms), when they collaborate with us, we don’t feel as though they’re any different than we are. We feel kind of like we’re their peers, and the respect that they give us and the ideas that they give us—it just feels like it’s a true collaboration.

> With our university class, we learned how to do discovery type of labs but with the ETEAMS program, we actually saw how to do it. Actually had to do it and get practice with that.

The inservice teachers valued the modeling of innovative lessons in the classroom. This motivated them to try such practices on their own. An in-service teacher shared:

> I definitely am more open and kind of try to think outside the box a little bit more. . . . I definitely try to look elsewhere to still cover the same information, but in a fun, engaging way.

The teachers also reflected on how the preservice teachers, graduate students, and STEM faculty are great role models for the 4-8th grade students. The teachers explained:

> When you bring in those other students or people who are doing something in the sciences, it’s exposure for the kids that I don’t think they otherwise would have had.

A second teacher agreed that students had experienced increased interest in STEM careers because of their exposure to people involved in STEM:

> They’re exposed to people outside of their standard teacher who are involved in things like this. So, you know, I think it has helped some students have a better perception of—or value of STEM careers.

Both the inservice and preservice teachers noted the level of enthusiasm of the elementary and middle grades students. The students enjoyed lessons that involved a high level of activity and interaction with their peers as well as their teachers. Due to the number of adults in the classroom, the students received more immediate feedback, which led to deeper learning.

### Conclusions

The STEM Thursday model benefits all the stakeholders by pooling resources, materials, and expertise.
By working in partnership with the inservice teachers and school administrators, STEM educators and faculty attained a better grasp of how to present educational theories to PSTs; thus helping them to bridge the gap between theoretical constructs and practical applications in the classroom through these authentic experiences. Especially for those faculty that have been far removed or disconnected from K-12 schools for some time. This ensures that the courses they teach are relevant and responsive to the everyday realities of the profession. In-service teachers benefit in multiple ways. They receive research based, high quality professional development situated in their teaching context. During the lessons, they have many extra hands in the classroom, which allows instruction to be differentiated, meeting the needs of diverse learners. Best practices are modeled, which encourages the in-service teachers to continue utilizing these strategies outside of STEM Thursdays. Not only are best practices modeled, but in-service teachers begin to appreciate the power of collaboration in all aspects of teaching including evaluation and reflection.

The school district has the advantage of hiring novice teachers that have high levels of content knowledge, pedagogy and self-efficacy in teaching math and science. These beginning teachers also have a deep appreciation for collaboration. This partnership in planning, teaching, and reflecting encourages a shared vision for teaching and learning at the schools and contributes to the success of all.

Implications and Recommendations
With the ongoing tensions of responding to accountability measures through standardized testing, it is important to find innovative strategies teachers can utilize in the classroom for inquiry-based teaching and learning to enhance student achievement. It is also critical that Colleges of Education prepare their future teachers to be successful by making sure theory is consistently grounded in the context of authentic teaching. Collaborations among Colleges of Education, Science and Engineering, as well K-12 school districts lead to increased student achievement as well as novice teachers that are more confident in teaching math and science content and capable to rising to the challenges of educating all children. Furthermore, the STEM Thursday is a model of a well-supervised field experience program that provides critical input for strengthening clinical preparation of our preservice teachers.

Although this team teaching model was driven by the need for pre-service teachers to have authentic experiences to learn both content knowledge and pedagogy, this model could be used to strengthen the quality of teaching and learning at all schools. In-service teachers could benefit from being able to collaboratively plan, participate in team teaching, and engage in thoughtful reflection. While this level of collaboration requires an investment of both time and money, the authors contend that this investment is well worth the outcome of more prepared, confident, and knowledgeable teachers and students.

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Promoting Collaboration Among Teachers of Different Academic Disciplines in Rural School Districts

Dr. Daniel Cade Allen

Rural schools face many challenges. From the increased accountability standards to inadequate funding, teachers and administrators alike are utilizing instructional collaboration to raise student achievement. From increased accountability standards to inadequate funding, teacher and administrators alike face many challenges to ensure student achievement. As such, they have to find ways to overcome the obstacles that teaching has historically experienced. Instructional collaboration is among the responses to the challenges of rural education. This study seeks to determine what effects instructional collaboration has on rural school teachers. The researcher found rural schools that promote collaboration share three characteristics: (a) teachers and administrators create intentional dialogue to address instruction and student achievement, (b) administrators alter meeting time and class schedules to allow for collaboration, and (c) the structure of collaborative meetings narrow the focus of its members to address the issues at hand.

The pressure for teachers to ensure that all students learn and experience academic success is highlighted by the national debate over increased standardized testing requirements. From No Child Left Behind (2001) to the current Race to the Top (2012), several pieces of legislation have discouraged educators from teaching their courses to “teaching to the test” (Ravitch, 2010, 2013). With recent debates over the reauthorization of the Elementary and Secondary Education Act, schools must adapt to another round of mandated testing. In a recent NEA survey (November 2014), Walker posited that forty-five percent of teachers considered leaving the profession due to the standardized testing (Walker, 2014). Furthermore, Walker noted that “teachers are dedicated individuals and many succeed in focusing on the positive, but the fact that testing has prompted such a high percentage of educators to contemplate such a move underscores its corrosive effect on the profession” Many teachers have expressed their concerns about the impact of standardized tests on their ability to teach their respective subjects. However legislators seem to have largely ignored teachers’ calls for their place at the discussion table (Gonzalez, Brown, & Slate, 2008).

Rural schools face an additional challenge of increased federal pressures. Yettick, Baker, Wickersham, and Hupefeld (2014) found that rural schools struggle to maintain the requirements of federal regulations in five categories: “funding, staffing, flexibility, regional services, and professional development” (p. 8). Yettick et al., conclude that annual federal financial support often does not cover the costs of professional development, thus forcing districts to stretch their funds even further than their non-rural counterparts.

Review of the Literature

There can be little doubt that effective teachers influence the academic development of students. Within the past two decades, several researchers have confirmed that improving teacher quality and professional development increases student achievement (Borman & Dowling, 2008). Similarly, Sanders and Rivers (1996) acknowledged that the quality of instruction can have lingering academic effects of more than two years. Thus, a student entering high school is likely to be aided or hindered by the quality of instruction from their seventh grade school year.

For many districts and organizations, the term “collaboration” has become a part of their stated mission and core values. However, as Robinson and Buly (2007) suggested, “the word [collaboration] is often used generically, implying the collaboration happens when individuals are working together.” (p. 84). Researchers have expanded this generic belief to incorporate a broad range of possibilities. One aspect of collaboration is defined as the process of creating solutions to mutually shared problems (Idol, Nevin, & Paulocci-Whitcomb, 2000).

Other studies (Ingersoll, 2001) have indicated that a lack of support from administration for teachers to be in control of their classroom instruction is leading to an increase in the number of teachers leaving the profession or seeking jobs in more supportive districts. Conversely, research has shown schools that adopt instructional collaboration raise student achievement and increase teacher retention rates (DuFour, Eaker, & DuFour, 2002; Rosenholtz, 1989). McLaughlin and Talbert (1993) found that when schools provide teachers the ability to share effective learning strategies, student and teacher efficacy is improved. Other research has argued that teachers are more likely to utilize new instructional strategies if they are offered in “active learning” envi-
Teacher collaboration through the interdisciplinary team model provides greater opportunities for students to be better known by their teachers (Lipitz, 1984), increase levels of self-esteem and positive perceptions of school climate. Likewise, teacher collaboration led to higher levels of student achievement (Mertens & Flowers, 2006) as well as more positive interaction and increased interaction with their teammates (Flowers, Mertens, & Mulhall, 2000). Lastly, teacher collaborative efforts created higher levels of interdisciplinary team and classroom instruction (Cook & Faulkner, 2010). Padwad and Dixit (2008) studied the influence participation has in a learning community on teachers’ thinking about classroom problems. They noted that participation in learning communities led to better performance in teachers’ ability to contextualize classroom problem and issues of practice.

A recent report (2014) found that seventy-eight percent of teachers felt that they did not have enough time in the school day to collaborate with other teachers. Other barriers to instructional collaboration include lack of instructional leadership among teachers (Mangin, 2007). Much of this frustration comes from a lack of school culture that encourages collaboration. Research has also shown that the decision-making process in schools “are not made by a single individual; rather decisions emerge from collaborative dialogues between many individuals, engaged in mutually dependent activities” (p. 70).

While studies have shown the challenges teachers face in ensuring student learning, little has been done within the context of rural schools. This study asked: What characteristics do rural schools possess that promote instructional collaboration? Future studies are needed in order to expand our understanding of these phenomena.

**Research Design and Methodology**

A qualitative study on rural schools and communities can be quite challenging. Among the issues in pursuing qualitative research, especially in settings that are weary of outsiders, finding participating districts whose teachers purposefully and formally collaborate was the most difficult. Further complicating the identification and selection of potential research participants was the small number of school districts that utilize Professional Learning Communities (PLC). Hallsbrooke ISD is located within a relatively short distance from the researcher’s home and agreed to participate in the study. Likewise, Atherton High School was a few miles away from Hallsbrooke ISD and also consented to participate.

There were six participants in this study. Each participant was chosen specifically because they represented a broad range of experience and characteristics. Based on the research questions, teachers were chosen according to the number of years they have in education. Additionally, each teacher agreed to participate in this study. As a result, the selection of the participants was both of utility and willingness of the participants. As Creswell (2013) notes, “the idea behind qualitative research is to purposefully select participants or sites...that will best help the researcher understand the problem and the research question.”

The data collected throughout this study consisted of three forms of inquiry. Interviews with individual teachers were conducted using recording device to ensure the greatest accuracy of data collection. Secondly, the researcher observed two PLC meetings at each respective campus to document the planning, assessment, and dynamics of each campus. Lastly, the researcher observed classroom instruction of each participant to assess the implementation of the goals of each PLC.

In each of the meetings, the researcher recorded the meetings using a recording device as well as taking observational notes of the teacher group. From the meeting notes recorded in a field journal and the recording device, the researcher transcribed all of the meetings. This allowed the researcher to triangulate the data in order to limit biases. Further, the researcher offered each participant the chance to review the transcripts of each meeting in order to correct any point or comment the participant felt did not reflect their true thoughts.

In order to protect the identities of the school districts and employees used in this research, the author used pseudonyms for the districts
and teachers. The names reflected in this paper are fictionalized and do not represent any person’s true name.

To track each participant in this study, each instructor was assigned a specific “Speaker” number. Hallsbrooke teachers were identified #1-3 while Atherton teachers were assigned #4-6.

Process, Context, and Relationships
Three themes emerged from the research conducted in two rural schools. This review of findings will provide insight into the influence collaboration has on rural teachers. Through a series of coding, recoding, and consistent comparative analysis, three themes emerged. These were (a) intentional dialogue, (b) time, and (c) structure and focus.

Context for Collaboration
Throughout the last ten years, both Hallsbrooke ISD and Atherton ISD maintained an annual lower rating than “Academically Acceptable” as determined by the state legislature. Occasionally, certain schools or groups of students maintained an average higher than their peers. However, each district replaced existing programs in order to raise student achievement on an annual basis. Prior to adopting the PLC model, both districts began implementing programs to foster instructional collaboration.

Hallsbrooke High School is located in a rural area in the eastern portion of a southern state. The community, although small, consists of a school district that serves surrounding rural communities. As such, the student population is larger than what is expected for a town of its size.

Assistant Superintendent Wendy Shearer explained in an initial meeting how the district came to adopt the learning community organizational model. By 2006, the school district struggled to meet the Adequately Yearly Progress standard set by the state. When she was hired, Shearer explained that “I was given three years to turn the district around and achieve the highest rating” the state prescribed. Her comments revealed a sense of desperation in trying to formulate a plan to raise student scores and the district’s rating (Sp. 1, p. 3).

Initially, Shearer implemented rigorous policies designed to raise student scores. However, she hinted that teachers “became worried about their jobs” and emphasized testing and rote learning. By the next year, Shearer began attending workshops and conferences geared toward instructional collaboration. While the district adopted the “Professional Learning Community” model, teachers initially struggled to adjust to the drastic change from “teaching in isolation” to “open classrooms” (Sp. 1, p. 5).

By the third year of her tenure at Hallsbrooke, Shearer and the district had achieved their goal of “Exemplary” status. As such, they have become a “Model of Excellence” district by the national Professional Learning Community organization.

Atherton High School followed a different path than Hallsbrooke. For the last decade, Atherton I.S.D. has struggled to maintain its academic rating of “Acceptable”. In recent years, the middle school has annually fallen short of its mandate to retain its accreditation.

By 2009, Denise Spivey, then a high school administrator, obtained permission from the school board to create an Early College High School. During her three years, the Early College High School admitted between twenty-five and one hundred students each year (the program admitted more students each progressive year). However, as students were enrolled in both high school and college courses, the Early College High School saw a dramatic increase of student test scores.

Atherton High School principal Denise Spivey was moved from the district’s Early College High School program to the main campus because of the rate of student success on standardized tests. Spivey agreed to allow the researcher access to the campus meetings in order to observe the processes of the learning community and how it’s collaboration influences the instructional practices of teachers.

Members of the Atherton High School learning communities met weekly throughout the school year in order to select and evaluate instructional practices aimed at raising student achievement. Initially, campus administrators were central in facilitating efforts of instructional collaboration. However, teachers quickly adopted the processes of collaboration and led meetings rather than the campus administrator.

Findings
Intentional Dialogue and Experience
Focused and intentional discussions enabled the development of trust, collaboration, and a commitment to the mission of the learning community. Veteran learning communities experience greater autonomy because they are more accustomed to making instructional decisions without the influence of campus administrators. Learning communities with less experience often rely on campus administrators to guide their decision-
making process concerning instructional pacing.

Hallsbrooke High School’s learning community meetings promoted intentional dialogue of all members. The structure of each meeting was designed to increase discussion about instructional practices. Agendas listed the topics to be discussed as well as the three common questions asked at every meeting.

During one observation, the researcher observed Hallsbrooke High School’s learning community began aligning instructional pacing to meet the demands of the school calendar. Leo Gregory, a first year teacher, asked about the upcoming standardized test and expressed his concern about not being able to cover all the material prior to the testing date. Jonathan Rowan suggested that the pacing of the remaining units must be quicker than normal due to the upcoming test. He stated: “The [STAAR] test is coming up soon and we need to be sure to cover all of the TEKS before that time.” (Speaker 5, p. 5). The discussion then led to specific activities each teacher expected to utilize as well as those they will discard due to time constraints. Leo Gregory suggested using an activity he borrowed from another teacher to maximize what instructional time they had left. In their collaborative discussions, both Rowan and Gregory discussed the challenges they would face in using the instructional strategy while maintaining a quick pace in the course.

Atherton High School’s learning community relied more on their campus administrators to guide its dialogue. Campus principal Spivey chaired discussions on pacing as well as measures to assess student learning. During the second observation, the learning community was given the mandate of brainstorming ideas on how to team-teach difficult concepts to struggling students. In this case, a Social Studies teacher would implement a lesson plan designed for an English course to help students better grasp the influence the Dust Bowl had on American literature. Spivey offered several suggestions on how to design a lesson plan that could be adapted to an American History course as well as instructional practices that would appeal to different types of learning styles. Similar discussions were held throughout the rest of the meeting for teachers of struggling students. Because the learning community had less experience with cross-discipline planning, Spivey had to model what type of discussions and planning she expected from the learning community.

**Time**

Throughout the seven years since its implementation, Hallsbrooke High School’s learning communities have met at different times of the week. (Int. 2, Sp. 5). Recently, the high school campus adjusted their teachers’ schedule in order to accommodate a “better time for meetings”. Jonathan Rowan explained that in previous years, “we [the learning community] had to meet once a week at 6:15 [a.m.]” He stated: “It was not very convenient for use to meet at 6:15 in the morning, but it was just something we had to do” (Int. 2, Sp. 5). With the support of the learning community, Rowan suggested that meeting during school hours would allow all teachers to participate in meetings. At the end of the school year, the learning community met with the campus principal and requested a change to the next year’s schedule. Through their requests, Rowan explained, “we were able to convince the principal that it would be beneficial for the teachers to be able to meet in the school day.” (Int. 2, Sp. 5)

Atherton High School’s learning community developed a different route for changing the schedule to allow all teachers to participate in collaborative meetings. Principal Spivey altered the bell schedule the previous year to allow teachers a “Ninth Period”. This alteration meant that teachers could meet during the school day during a common period.

During the school year, teachers were required to offer mandatory tutoring to students who were not passing during the previous grading period. Campus administrators designed a rotating tutoring schedule so that teachers of similar disciplines would be able to offer tutoring with another teacher. On specific days, Science teachers would meet in a central location with many of their students to offer instruction and academic help in small groups. Likewise, Social Studies teachers offered academic assistance to students struggling in their classes in the same location as the other Social Studies teachers. This meant that one teacher would be able to help his or her own students while helping students from another class.

Because of the tutoring schedule, Spivey altered the meeting times of the learning communities to occur on a day that no tutoring was offered unless a student requested extra help. As such, teachers of different academic disciplines were able to meet with their learning community on a designated day. As Spivey stated: “It does no good to have some teachers attend a meeting and not others.” (Sp. 6, p. 2). Perez, Wood, and Jacquez (1999) noted that the principal must support teachers in developing new approaches and innovations to instruction. As such, the
Atherton learning community exhibited these characteristics under the guidance of Spivey’s leadership.

Structure and Focus
Hallsbrooke High School’s collaboration time focused on clear and specific objectives to be accomplished during each meeting. Each meeting followed a similar outline throughout the school year. A campus administrator usually attended each meeting, but remained on the periphery of discussions.

Each meeting had an agenda that each member signed once the meeting was concluded to signify that the goal was discussed and a plan was in place to measure the outcome of the goal. Teachers were provided a list of topics that were to be discussed, including a series of questions that the group leader was charged with providing evidence at a later date that the goal was accomplished. Collaboration time was used to encourage discussion on instructional goals and practices as well as measures to ensure that students had met satisfactory performance in the stated learning objectives.

Meetings concluded with a discussion amongst teachers about how each learning community would measure student success on the instructional goals. Because the district used a common assessment [benchmark tests], there was little discussion about how to measure student success. Each agenda concluded with a question: “How will we know students have understood [the subject] and what will we do if students have not met the goal?” Participants then collaboratively designed a plan to re-teach concepts if students had not acquired the specific skills and knowledge of each learning unit.

Following every meeting, teachers would deliver their instructional lessons to each class and submit student benchmark scores to the learning community. As a group, teachers pored over student data to identify which students needed academic tutoring. Lastly, these meetings concluded with a discussion and comparison of instructional strategies to raise student achievement for those who did not initially pass the benchmark tests. This pattern followed what Schmoker (1999) stated, “If we consistently analyze what we do and adjust to get better, we will improve” (p. 56).

Conclusion
In an era of increased accountability, teachers face a difficult challenge: how to collaborate with their colleagues to promote student learning. Rural schools face the additional challenge of meeting the expectations of both the state and the community. Instructional collaboration offers the opportunity to create a community of teachers that seek to promote student success through their own professional learning. However, many barriers exist that challenge learning communities from collaboration.

Schools seeking to employ instructional collaboration to raise student achievement face a difficult challenge. They must promote dialogue between teachers that facilitates collaboration as well as model how the types of collaboration they expect from their teachers. This is increasingly important for teachers with limited experience in schools or in professional settings that demand collaborative dialogue focused on raising student achievement. Further, campus administrators must be diligent in allotting time during the day to devote to collaboration. Providing only limited time for teachers to meet can only produce limited results. Lastly, a structure for collaboration must be adopted in order to effect the changes needed to be made in the era of high-stakes testing. While these three characteristics are not exhaustive, they highlight some possible solutions to increasing collaboration in a profession that has historically been isolated.

In an era of high-stakes testing, it would appear logical to create an atmosphere conducive to instructional collaboration. However, as this study denotes, certain practices can increase the efficiency of collaboration. Three factors promoted collaboration in these learning communities.

Intentional Dialogue. Encouraging teachers to participate in discussions of practice offers the opportunity to find new instructional methods as well as connecting different academic disciplines.

Time. Teachers struggle to find time throughout the school day to meet in their respective learning communities. As such, it is imperative for an allotted period of time to be devoted solely to the learning community.

Structure and Focus. Learning communities must have a structure in place that develops instructional leadership and collaboration. Likewise, its focus must remain rigidly fixed on improving instruction and student success.

Implications for Rural Schools
This study suggests that collaboration requires specific efforts to increase collaboration amongst its teachers and instructional staff. In order to ensure that instructional collaboration can occur, administrators and teachers alike must identify how their campus or district can aid in that effort.
For teachers to engage in instructional collaboration, they must create intentional dialogue in order to identify the needs of both the students and campus. From formal PLC meetings to informal classroom observations, teachers and administrators can assess student data based on formative and summative assessments to develop instructional techniques that will address the goals of the PLC.

As with any profession, the issue of scheduling a meeting time that is conducive for all members can frustrate the efforts of a PLC. Administrators should take into consideration the time constraints of the school calendar and organize their schedule to allow the PLC to meet at a reasonable time within the school day. Likewise, teachers can participate in identifying what times they are willing to meet to find a common time that fits within the school day to meet.

Lastly, teachers and administrators must commit themselves to creating a structure that is conducive to instructional collaboration. Like the two PLCs observed, instructional collaboration cannot occur unless there is a process towards reaching that goal. For Hallsbrooke, collaboration occurred in structured meetings with a defined set of objectives to discuss and plan for. Meetings conducted in this manner will provide a forum for collaboration to occur. Others, like Atherton, required that an administrator plan meetings in advance with a particular goal to be discussed. Depending on the experience of the PLC members will help determine who structures meetings to meet their objectives.

References


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Playing Well with Others: Co-Teaching in Higher Education

Dr. Many Lusk, Dr. Donna Sayman, Dr. Staci Zolkoski, Dr. Kelly Carrero and Dr. Calli Lewis Chui

Traditionally, co-teaching is discussed with Kindergarten through 12th grade teachers. Recently, researchers have been exploring the concept of co-teaching within institutions of higher education (IHEs). Co-teaching in IHEs can promote effective teaching for teacher educators and their teacher candidates. The following article will examine co-teaching in IHEs experiences through an auto ethnographic lens. Specifically, the authors will define co-teaching and delineate various co-teaching models. Next, the authors will highlight challenges and benefits of co-teaching. Then, the authors reflect on personal co-teaching experiences in IHEs. Finally, the authors will discuss future directions of co-teaching in higher education.

Vygotsky (1978) once quoted that “social interaction and cooperative learning are paramount in positive learning experiences.” Currently, all levels of educators are increasingly being asked to work collaboratively to meet the needs of today’s Kindergarten to 12th grade (K-12) learners (Bacharach, Heck, & Dahlberg, 2008; Forbes & Bilet, 2009; Kroeger et al., 2012). It is common practice for public school teachers to work together with content or grade-level educators, special educators, and paraprofessionals to implement curriculum that meets the needs of individual students. Co-teaching is one strategy found to positively impact K-12 student achievement (Bacharach et al., 2008; Cook & Friend, 1995; Graziano & Navarre, 2012). In its most effective form, co-teaching offers all students positive learning opportunities (Cook and Friend, 1995).

Originally, Cook and Friend (1995) presented co-teaching as a realistic solution that special and general educators could utilize together in mainstream classrooms. Although research strongly supported co-teaching in K-12 settings to meet the learning needs of students with and without disabilities, the degree of co-teaching at the university level has been much less common (Bacharach et al., 2008; Kroeger et al., 2012; McHatton & Daniel, 2008). Even though implicitly addressed in numerous teacher preparation programs, many teacher candidates are not explicitly taught the necessary skills for successful collaboration. There has been a growing need for new approaches for preparing teacher candidates in collaborative interactions (Ball, 2009). Arne Duncan (2009), U.S. Secretary of Education, has called for teacher preparation program reform in order to increase K-12 student achievement. Training teacher candidates to be effective co-teachers must be an important element of teacher education programs in higher education (Graziano & Navarre, 2012).

Within teacher training programs in institutions of higher educations (IHEs), faculty must collaborate to teach pedagogy, content, and supervise clinical experience, thus preparing candidates with the necessary foundation of theory and practice for teaching diverse student populations. With this in mind, this article examines our own co-teaching experiences through an auto ethnographic lens. First, we, the authors, define co-teaching and delineate various co-teaching models. Next, we highlight challenges and benefits of co-teaching. Then, we reflect on personal co-teaching experiences (a) within discipline/between institutions, (b) within discipline/within institution, and (c) between disciplines/within institutions (i.e., dual certification programs). Finally, the authors discuss future directions of co-teaching in higher education.

Definition and Models of Co-Teaching
Co-teaching has been defined as “occurring when two or more professionals jointly deliver substantive instruction to a diverse, or blended, group of students in a single physical space” (Cook & Friend, 1995, p. 1). Wenzlaff et al. (2002) add that co-teaching should enhance what cannot be done alone. Table 1 delineates the different models of co-teaching proposed by Cook and Friend (1995). All co-teaching models have variations and no one approach is better than another. Additionally, the models may be used alone or with another model in any session of a co-taught class.

Co-Teaching in Higher Education
In the fields of teacher and special education, co-teaching is generally discussed regarding K-12 school settings; however, IHEs also find needs for modeling co-teaching. In fact, as federal legislation addresses the need for accountability in American schools, the ideas for improving teacher preparation programs proliferate. For example, the No Child Left Behind Act (NCLB; 2001) states that all students, including students with disabilities, have rights to the general curricula and general educators are accountable for all student
Table 1. Models of Co-Teaching.

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<th>Strategy</th>
<th>Definition</th>
<th>Benefits</th>
<th>Challenges</th>
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| One Teach, One Observe | One teacher provides instruction while the other observes and collects data. It is decided in advance specifically what information will be gathered during instruction and a system for gathering data. Afterward, teachers analyze information together. | • Allows a teacher to collect data.  
• Helpful when a student is on a behavior plan.  
• Teacher observing can see which students are staying on task.  
|                        |                                                                                                                                                                                                          | • Observing teacher may feel like an observer and not a teacher.  
• Students may not see observer as an actual teacher.                                                                                                                                  |
| One Teach, One Assist  | Although both teachers are present, one takes primary responsibility for teaching while the other observes students or walks around the room and provides unobtrusive assistance to students as needed.                  | • Simple  
• Limited teacher planning required  
• Provides basic support to all students  
|                        |                                                                                                                                                                                                          | • Assisting teacher may feel like a glorified teaching assistant  
• Students may question teacher’s authority  
• May be best to alternate lead and support roles.                                                                                                                                  |
| Station Teaching       | Teachers divide instructional content into two or three stations and present their part of the material at separate locations within the classroom. If students are able, a third station can be used for independent or partner work. | • Students benefit from lower a student-teacher ratio.  
• Students with disabilities can be integrated into groups instead of being signaled out.                                                                                  | • Noise and activity levels are high.  
• Teachers may have different pacing levels, creating issues with timing.                                                                                                               |
| Parallel Teaching      | The teachers divide the class and simultaneously teach the same information allowing for a lower student-teacher ratio.                                                                                 | • Students have the opportunity to participate in hands-on activities or interact with each other.                                                                                 | • Problems may be created due to noise level.                                                                                                      |
| Alternative Teaching   | One teacher works with the small group (e.g., 3-8 students) while the other teacher is responsible for the large group. Small groups may involve pre-teaching or re-teaching material or enrichment opportunities.            | • Students with disabilities benefit from smaller groups.  
• All students have the opportunity to interact with the teacher.                                                                                                                              | • May stigmatize students with disabilities who might repeatedly need re-teaching.                                                                                                                 |
| Team Teaching          | Both teachers provide the same instruction to students. The teachers may take turns delivering the instruction. One may speak while the other models note taking or demonstrates a concept.                | • Many teachers find this strategy to be rewarding.  
• Teachers have reported renewed energy in their teaching.  
• Teachers may be prompted to try new ideas.                                                                                                                                             | • Requires a high level of mutual trust between co-teachers.  
• Requires major commitment between teachers.  
• Some co-teachers may not be comfortable with this approach.                                                                                                                             |
achievement outcomes. Arne Duncan challenged teacher educators to implement innovative teaching strategies for teacher candidates (Duncan, 2009). He stated that these innovations on the university level would likely increase K-12 student achievement. In fact, there are instances in this country where special education teachers, particularly those teaching in secondary settings, are required to adhere to state certifications in both special education and a core academic area (i.e., a general education teacher certification; Blanton & Pugach, 2007). Consequently, traditional special education teacher preparation programs in higher education respond to these mandates using non-traditional, or creative, measures.

Even though co-teaching in higher education serves as a positive teaching strategy for teacher candidates to generalize in their own future classrooms, research is limited on co-teaching in IHEs (Bacharach et al., 2008). The authors understand that more empirically based research must be conducted on co-teaching in higher education.

Benefits of Co-Teaching in Higher Education

There are numerous benefits of co-teaching in IHEs. As education and other fields of study progress in complexity and technology, co-teaching utilizes a strength-based model of instructional delivery. The literature indicates benefits of co-teaching teams consisting of two faculty (Bacharach et al., 2008; Letterman & Dugan, 2004; Patel & Herick, 2010; York-Barr, Bacharach et al., 2004). The most noted benefits of faculty co-teaching in higher education are (a) students receive varying perspectives and instructional strategies, (b) students demonstrate increased outcomes and engagement, and (c) co-teaching faculty improve pedagogical practices through collaborative preplanning and reflection (Dugan & Letterman, 2008; Ferguson & Wilson, 2011; Patel & Herick, 2010). Since the inception of co-teaching at IHEs, leading benefits of the instructional model have been cited as pedagogical transparency (Annis, 1989), collegial support, and professional development (Gray & Meyer, 1997).

Challenges of Co-Teaching in Higher Education

As previously stated, there are numerous benefits to co-teaching in higher education; however, co-teaching in IHEs also presents various challenges. The following challenges include, but are not limited to (a) challenges among co-instructors, (b) resistance from students, (c) resistance from IHEs, and (d) issues related tenure and promotion.

Challenges among Co-Instructors

Individual differences prove problematic in co-teaching scenarios. Instructors may have different opinions regarding what is important to teach (Harris & Harvey, 2003; Letterman & Dugan, 2004). Multiple instructors face challenges in navigating how to focus one’s time and attention in class. Co-instructors take different approaches to tasks and processes. For example, one instructor may emphasize the process of teaching and group dynamics while another values content and tasks. In order to prevent conflict during co-teaching from creating potential problems in the classroom, instructors should address differences and work proactively toward compromise.

Engaging in reflection-in-action, a concept introduced by Schön in 1983 meaning that co-instructors work together to construct new knowledge, trust and openness will likely result in an environment of discovery and learning for the instructors (Harvey & Harris, 2003; Letterman & Dugan, 2004). Depending on the interpersonal skills and personalities of the co-instructors, a foundation of trust and openness may be difficult to attain. If the co-instructors are reluctant to learn from one another, there may be limited experiences for learning and growth. Just as hooks (1994) encourages faculty to be vulnerable and take risks in their classrooms, Harvey and Harris (2003) encourage co-instructors to do the same with one another - “the more room there is for active risk taking and construction of knowledge in the work of the faculty team, the greater the likelihood is for a classroom environment that encourages risk-taking and knowledge construction” (p. 31).

Co-teachers likely share similar perspectives, worldviews, educational philosophies, and values (Letterman & Dugan, 2004). A challenge may lie in determining how to create opportunities that will allow co-teachers’ unique differences to be evidenced. Co-instructors should be mindful of this aspect of team teaching and create opportunities to dialogue about valuable teaching and learning experience differences. Disagreements in the classroom are valuable learning experiences. Co-instructors facilitate students’ understanding of how considering conflicting points of view and a range of perspectives develop one’s own point view.

Resistance from students

Instructors may expect a degree of resistance from students in the initial stages of a co-taught course (Zapf, Jerome, & Williams, 2011). Students see their college educa-
tion as a means to employment. Moreover, students may be more interested in completing the course in an efficient manner than in the personal growth and transformation that often accompanies co-taught learning environments and may perceive courses as more legitimate when taught by one instructor. Introducing a course taught by multiple instructors causes apprehension among students who are being compelled to move beyond the traditional patterns and expectations of higher education. Subsequently, students may feel frustrated and overwhelmed at the beginning of a team-taught course. Co-instructors should strive to make expectations clear and specific for students who feel uncomfortable with a co-taught course.

Resistance from the college/university
Just as some students demonstrate a reluctance to accept the structure of co-taught courses, IHEs resist the idea of multiple instructors teaching a single course (Zapf et al., 2011). Administrative support for faculty collaboration is often tangled within university policy and structure. Kezar and Lester (2009) discovered that it is critical for faculty to understand university structure and the role it can play in preventing effective collaboration. Indeed, co-taught courses prompt reconsideration of structure inherent in higher education. For example, traditional course evaluations are based upon one instructor per course. In co-taught courses, the effort of the interaction of multiple instructors needs to be evaluated. Regarding tenure and promotion, the effort involved in co-teaching is not easily evidenced in traditional faculty workload calculations (Partridge & Hallam, 2005). Administration generally assumes that in co-taught courses, the work is simply divided evenly amongst the instructors. The reality however, may be quite different. Teaching is not a profession in which duties can be evenly divided into individual unit. Instead, creative, fluid processes foster dynamic, learner-centered environments. Throughout the time when a given course is co-taught, instructors invest varying amounts of time designing, delivering, and managing instruction. Some faculty members see this as a threat to academic freedom (Kezar & Lester, 2009). Open communication between faculty and administration is a key element to overcoming these challenges.

Tenure and promotion
The trend toward discrete, specializations within education also impacts tenure and promotion within academe. Tenure, as it is traditionally imagined, favors a strong individualistic system. Individual faculty members earn rewards based on publications and teaching evaluations, not on collaborative contributions to the department or university (Kezar & Lester, 2009). This systematic structure is a strong challenge against collaborative efforts as most systems of merit do not recognize, nor place a great deal of importance on, collaborative initiatives. Professors may be reluctant to enter into a co-teaching classroom due to current faculty evaluation process, which prove difficult; students may be confused over how to fairly appraise each professor. Kezar and Lester (2009) proposed that one way to overcome this challenge is to revise the tenure and promotion process. Long standing beliefs about rewards within academia must be re-evaluated by university administrators to include a system which values interdisciplinary collaboration because “rewards signal where people’s values lie.” (p. 134). Unless value is placed on the collaborative process, faculty will be reluctant to spend time and effort on innovative ways of thinking about co-teaching.

Experiences Co-Teaching in Higher Education
We, the authors, explain our personal co-teaching experiences or models, which include (a) within discipline/between institutions, (b) within discipline/within institution, and (c) between disciplines/within institutions (i.e., dual certification programs). For the purposes of this paper, the authors define discipline as a field of study. Furthermore, authors in the discipline of special education write the following reflections; however, we believe that knowledge can be gained from teacher educators from all disciplines.

Within Discipline/Between Institutions
The following explored co-teaching model was a result of a federal teacher preparation grant that called for “innovative collaboration.” The co-principal investigator/co-teacher and I researched and discovered that co-teaching in IHEs was only being implemented successfully in a few states across the U.S. We teach master’s level special education candidates at separate Council for Accreditation of Educator Preparation (CAEP) and Council for Exceptional Children (CEC) granting IHEs in the same state. Naturally, we thought that co-teaching in IHEs was innovative and collaborative, aligning with the mission of our teacher preparation grant.

Preparation
With co-teaching a master’s level course in special education as our ultimate goal, my co-teacher and I spent nearly eight months preparing for our first class. The co-teacher had previously taught the course, and it was a new preparation course for me; therefore, prep-
In addition to preparing materials for class, the co-teacher and I had to prepare our administrators for this innovative collaboration. My co-teacher’s department chair and dean were immediately supportive; however, my department chair and dean needed extra time and rationale from me. After roughly five meetings with my administration, they agreed to pilot this format. The primary concern of the administrators pertained to the financial aspect of this endeavor. My co-teacher and I prepared a budget of expenses and explained how these expenses were going to be paid, which was incidentally mostly by the federal grant. Administration was invited to virtually visit the class at any time for further confirmation of this idea.

**Co-teaching**
With preparation completed and administrative challenges conquered, my co-teacher and I were ready to co-teach. We understood that we both had diverse professional experiences and we utilized those professional strengths during our teaching. For example, my professional experience is mostly in educating children and youth with challenging behaviors. The week our class discussed social and emotional behaviors of students with disabilities, I volunteered to provide additional resources, helped educate my co-teacher on specific points we wanted to address on this topic during class, offered guest speakers who have made significant impact in this area, and disseminated the research to the co-teacher and students about these specifics and other valuable instructional options for this particular section. During our class time, we took turns answering all students’ questions and addressing their concerns. Additionally, we made a concerted effort to ensure all students felt they were all our students, regardless of which university they enrolled in.

**Grading**
During preparation, the co-teacher and I agreed we would expect our graduate students to complete three major assignments related to the coursework in the class with no formal exams. In addition, we expected our students to complete weekly assignments. Early in the planning process, we decided we would each grade our own students’ work, especially when grading the major assignments. However, some weekly assignments were very specific and did not allow for subjectivity from the grader. When these weekly assignments arose, I often graded the assignments for both the co-teacher and myself. Since the co-teacher had previously taught the course and helped give numerous resources for this class, I felt grading was one small token of my appreciation.

**Communication**
Communication became a fundamental piece of this experience. There were two different components of communication during this co-teaching model - communication between the two co-teachers and communication among the two co-teachers and the students. During this experience, the co-teacher and I regularly scheduled meetings before and after class, emailed, and called each other. We also discussed our travel schedules during the semester, other classes we were teaching, and other potential issues that might interfere with communicating about the class for a period of time. Finally, we provided each other with feedback after each class.

Communication among the two co-teachers and the students was also essential. We informed all students that each co-teacher would hold “virtual office hours” approx-
The hybrid approach most useful as itly benefit students with disabili-
ties. This co-teaching model was the result of serendipity carried out by an adjunct professor and me, a faculty member. Our program is a graduate level master’s degree and endorsement for people seeking a teaching opportunity in special education. A condition for acceptance to our program is that the candidate must have a Bachelor’s degree, a valid initial teaching certificate, and 3.0 grade point average. Many of our students are hired on an emergency teaching waiver for special education, which requires them to take university classes in addition to their professional teaching duties.

Last year, our beginning level methods course for students completing the waiver requirements was overflowing with students. This three credit hour course covers introductory assessments, curriculum differentiation, and behavior related to students with mild and moderate needs. At 35 master’s students enrolled, this was far too large a class for one faculty member to teach. These educators are already teaching in a special education classroom, some of them for the first time in their educational career. Needless to say, there is much more to this class than academics.

The week before the semester began; we received approval to hire an adjunct professor for a second section of the class. My department chair suggested that it would expedite matters if we added this adjunct professor to the existing class and consider the co-teaching process. It was then the adjunct professor/co-teacher and I began our co-teaching adventure.

We decided to split the class in two groups; Group A and Group B. One week, Group A would meet on campus and Group B would complete an online module, and they would switch the next week. Our thoughts were that the academic aspect would occur online and then the pragmatic, contextual activities would happen the week they were on campus. The adjunct professor, who was a retired special education administrator, would plan the on-campus class and I, who was professional trained in online course development and long-time special education faculty, would prepare for the online portion. We presumed our combined years of experience would be a unique benefit for the students. Throughout the process, there were several challenges; however, we had much hope and enthusiasm for this course.

In an end-of-course survey, it was clear the students were sharply divided in their opinions of the course. For example, one student commented, "The most useful aspect of the course was having two perspectives of the class (meaning the teachers) to provide different insight into teaching special education." Other positive comments were, "Thanks for the Panopto video lectures and for guiding instruction discussions with the heart of a true veteran and caring teacher as well as providing the administration perspective," "I liked having 2 instructors and their different points of view." and "The hybrid of meeting and working online was the best of both worlds. Also, the co-teaching model both instructors was an excellent combination!" However, not all of the students were as optimistic as evidenced by these comments, "This class SUCKED being taught like this. One person would tell our class one thing and the other would tell us another. The left hand was not talking to the other and we had

Overall, my co-teacher and I felt our collaborative experience in higher education was a successful one. In addition, our students seem to enjoy the innovative teamwork created by the two of us. Even though minor improvements are necessary, we plan to continue this co-teaching process to explicitly benefit students with disabili-

Student data
Students varied in their opinions on the format of this course; however, they seemed to be positive about the co-teaching represented. In fact, one student commented, "I would prefer meeting the professors in a face-to-face class; however, I enjoyed learning the different perspectives from each professor." In addition, another student remarked, "There was so much great information in the course, but I think the format would be better served in a traditional format. I loved the enthusiasm from both professors during the instruction." In addition, there are numerous students’ comments made about the powerful impact of observing a co-teaching model through IHEs.
twice as much work to complete,” and “I think having two different instructors not in the same place at the same time is difficult. If the instructor teaching didn’t know the answer or said something different than what was told by the other instructor there is mass confusion.”

Overall, the students in the class gave high rankings in the course evaluation. I especially liked what one person stated, “While there may still be some ‘bugs’ to be worked out, I liked the aspect of the course being team taught. It gave me some insight into co-teaching in the school systems now that is the direction special education are headed, at least for this week.”

Giving the students an opportunity to see how a co-teaching model worked was a priceless experience for us.

Adjunct professor’s perspective
As an adjunct professor with many years of teaching experience and retiring from my position of as an administrator for our city’s alternative school, I was surprised at how many students struggled to follow the printed schedule for groups A and B. After we worked out those types of difficulties, the class went much smoother. We balanced different grading techniques by having some assignments graded by one of us and other assignments graded by the other. This alternating approach allowed us to reach a balanced way to evaluate the students. We talked often, comparing notes, complaints, and concerns. This prevented students from being able to triangulate us, meaning that some students would go to one instructor for directions even if the other had stated something different. The experience of being able to concentrate on hands-on techniques and not worry about the textbook learning was a big plus for me. I knew the faculty member was taking care of the direct instruction allowing me to concentrate on practical classroom activities the students could use immediately.

If we were to do this again, I would ask for more planning time to avoid some of the confusion at the beginning of the semester. I would also suggest that we plan the curriculum differently to ensure that all students receive adequate textbook instruction and practical classroom each week. Overall, I enjoyed getting to know the students on a more personal level and this co-teaching process.

Between Discipline/Within Institution.
In my respective state, all general education candidates must have at least nine credit hours in special education during their teacher training (22 Pa. Code § 49.13). One common response to this state regulation is to offer teacher candidate training in collaborative or dual certification programs (i.e., preparation for certification in both general and special education; Blanton & Pugach, 2007; Blanton & Pugach, 2011; Pugach, Blanton, & Correra, 2011). In order to develop teacher certification programs resulting in effective preparation in both general and special education teaching practices, diverse areas of expertise are necessary (Blanton & Pugach, 2007). Blending two traditionally different perspectives (i.e., general and special education teacher preparation) can prove challenging, yet provides an ideal environment for utilizing the co-teaching model (York et al., 2004). The most obvious co-teaching stage to be included in dual certification programs is co-programming or co-planning.

Co-programming
Faculty in IHEs have to navigate multiple governing and accrediting bodies in order to meet national, state, university, college, and departmental regulations. Furthermore, regulations for general education and special education teacher preparation programs often differ quite significantly, causing faculty to employ creative solutions (Blanton & Pugach, 2011). One recent example of general education and special education faculty co-programming to create a dual certification program takes place at my corresponding university.

Our dual certification faculty group (i.e., faculty representing early elementary general education and special education) had to consider several accrediting bodies. First, we had to meet the accreditation standards of our national specialized professional associations in order to prepare the proposed dual certification program to meet CAEP standards and, consequently, be eligible for national accreditation and recognition. In addition to co-programming to meet national requirements, we also considered teacher competencies and guidelines for each discipline. Next, we co-designed a dual certification program that adhered to the number of credit hours allowed in a program offering according to our state. At this point in the co-planning process, we engaged in many discussions to determine how to meet the necessary requirements of each discipline and our state’s credit hour requirements without diluting the training necessary for each certification area. Faculty from both disciplines diligently navigated theoretical chasms (i.e., constructivism versus behaviorism) by reconfiguring perspectives and maintaining an open mind about instructional practices. Consequently, we were able to reach agreements through creative
problem-solving and programmatic concessions from members of each discipline. Time, planning, reflection, concessions, and diligence were necessary components to our dual certification program planning team.

Modeling
At our university, we are still in the embryonic stages of co-teaching; however, we anxiously anticipate using co-teaching as a modeling strategy (Bacharach, Heck, & Dahlberg, 2008; Patel & Herick, 2010). Our dual certification program provides the optimal opportunity to model and frequently practice various co-teaching models in the K-12 classroom (see Cook & Friend, 1995). As a result, we hope our students will feel better prepared for collaborating and engaging in co-teaching models when they enter the K-12 classroom (Bacharach et al., 2008). Moreover, it is our hope our students will observe how we, as co-teaching faculty, negotiate conflict and collaboratively present content and experiences. For example, we have already discussed the different theoretical approaches that our respective disciplines use as a pedagogical framework. My special education colleagues and I often employ behavioral strategies to prepare our teacher candidates because this is very similar to how our teacher candidates will work with students once they are in the classroom. My general education colleagues utilize constructivist strategies to educate teacher candidates because this is often the framework used in K-12 classrooms. While our different approaches need not be contrasted as incompatible approaches to learning, it will likely require thinking differently about our counterpart’s framework when planning and presenting material. We fully intend to share this process with our students, both through dialogue and classroom experiences.

In the previous sections, the reader assumes there are various ways faculty can co-teach in higher education. It is important to reflect on the varied co-teaching experiences and how these experiences may affect your work with teacher candidates. The authors understand that preferences change as your co-teaching experiences may change.

Future Directions
Similar to the establishment of the Vienna Circle in 1924, co-teaching in higher education allows a diverse group of experts to collaborate and advance the community it seeks to serve through unique instructional practices. Interdisciplinary studies seems an obvious parallel as it was founded on the premise that as systems become more complex, the seminal work and study of those systems also becomes more complex (Newell, 2001). Analogous to the origination of interdisciplinary studies, co-teaching offers a unique vehicle to transport the study of new or evolving disciplines. Furthermore, co-teaching used as a model for mentoring or enculturating graduate students into their respective field of study is a clear implication for any advanced field.

Typically, teacher education has been categorized by fragmentation, exclusion, isolation, and insulation (Ball, 2009); however, in order to inform a developing culture of interdisciplinary practices, teacher educators must alter their department priorities, curriculum, and teaching. An innovative culture of education necessitates teachers having the ability to cross boundaries to meet the needs of students who are difficult to reach, and cross personal and professional barriers.

To increase K-12 student achievement, educational reform must begin with effective teacher preparation programs that include curricula for academic and social needs of a diverse population of students (Graziano & Navarrete, 2012). Evidence has shown that co-teaching practices positively impact educational outcomes for all students (e.g., McHatton & Daniel, 2008; Graziano & Navarrete, 2012). It is crucial that schools and university faculty be encouraged to utilize co-teaching strategies.

Modeling is a fundamental aspect of teacher education; yet, when it comes to co-teaching, our candidates are prepared individually and in isolation (McHatton & Daniel, 2008). Training through modeling is an essential element of training teachers (Bashan & Holsblat, 2012; Graziano & Navarrete, 2012). Individuals, graduating from teacher preparation programs where co-teaching is modeled and taught in pedagogy courses, are desirable candidates for teaching positions (Graziano & Navarrete, 2012). Furthermore, producing teachers with proficiency and confidence in their ability to deliver instruction in a collaborative setting will not only increase student achievement, but also positively impact teacher retention (McHatton & Daniel, 2008).

Exposing teacher candidates to co-teaching at the pre-service level offers the opportunity to discover the roles and responsibilities of general and special education teachers who must collaborate to ensure academic success for all students (McHatton & Daniel, 2008). Moreover, with an emphasis on inclusion, general educators need a greater knowledge base of disabilities. Additionally, it is necessary for special educators to gain an understanding of the general education standards and curricu-
lum across content areas. However, it is essential that both general and special educators gain a better understanding of how to collaborate effectively as equal partners.

**Conclusion**

Research on co-teaching is limited; however, what is available is typically positive (Bacharach et al., 2008; Forbes & Billet, 2009; Letterman & Dugan, 2004; Patel & Herick, 2010; York-Barr et al., 2004). Existing research demonstrates that co-teaching often benefits teacher candidates and positively affects faculty. It is imperative to systematically plan and implement programs involving co-teaching (Cook & Friend, 1995). Furthermore, deliberate and continuous communication between everyone involved is fundamental. Co-teaching is dependent on several factors that must be determined by faculty involved at the university. For co-teaching to be successful, preparation, administrative support, and opportunities to cultivate collaborative relationships is critical. The use of co-teaching in teacher preparation programs is a promising practice for promoting collaborative skills and improving classroom instruction (Bacharach et al., 2008).

**References**


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Principal Preparation in STEM: An Action Research Project

Dr. Puneet Singh Gill

Traditionally, the impetus of principal preparation programs is a focus on educational administrative leadership theories, facilities management, human resources, and systems of supervision. However, principals are more than a by-product of the education law and theory systems; they are the key component of the public education organizational management driving student outcomes (Hallinger & Heck, 2010). As recipients and disseminators of school board policies and instructional trends, the evaluation of their effectiveness is linked to accountability standards (Shoho & Barnett, 2010). Principals are the sole leaders at the campus level, hence, they are responsible for exercising leadership practices associated with improving classroom instruction (Lochmiller, 2014). Relatedly, according to the National Science Teachers Association (NSTA) president, the gap in Science, Technology, Engineering and Mathematics (STEM) pedagogical knowledge is underscored by the fact that principals are not trained in areas of STEM education (Falk, 2015). Therefore, there is a pressing need for principals to increase their roles as knowledgeable, instructional leaders who will develop and implement the academic mission of the school. In that case, the primary goal of an effective instructional leader is to dedicate attention to closing instructional achievement gaps, especially in subject areas where students’ state performance data indicate the largest difference, like science and mathematics (THECB, 2015a).

This paper provides an examination of the relationship between the current state of affairs of STEM attainment and the STEM-specific preparation of principals. The researchers argue that STEM-knowledgeable principals can help close the content-specific gap by receiving better preparation in mathematics and science areas, which is lacking in principal preparation programs. As evidenced by the creation of the Texas College and Career Readiness Standards (CCRS), Texas leads the nation in reform efforts in college preparation; consequently, this paper targets the principal-STEM issue as it exists in Texas (Gewertz, 2009; THECB, 2009). Although this paper discusses the void in STEM-specific principal preparation, it will also propose that administrators can learn through collaborative relationships where teachers, and principals work, learn, and teach together and ultimately, lead together. Relatedly, the researchers’ expectation is for this paper to lay the groundwork for an action research project that aims to analyze the impact of STEM-specific, collaborative training in pre-service principal preparation.

Principal Preparation Programs

According to Firestone and Riehl (2005), despite the abundance of research on principals’ preparation programs and leadership practices, understanding what principals do to make a difference in teaching and student learning remains limited. Traditionally, the practicum has focused on field-based experiences at previously and mutually selected school settings where the university supervisor visits and observes the principal candidate (Stevenson, Conner, & Fritz, 2008; Frye, Bottoms & O’Neil, 2005). For example, at Delta State University, pre-service principals are required to complete a total of 38 weeks of field-based hours divided into 12 weeks at the elementary, middle and high school campuses, and two weeks in a central office setting (Davis & Darling-Hammond, 2012). Another example is Wichita State University which utilizes an entirely field-based curriculum in which they reduce classroom hours and maximize students’ experiences in local school districts (Orr, 2006). Additionally, Kearney and Valadez (2015) identified three important categories for principal preparation programs: enhanced entry criteria, increased field-based experiences, and heightened support after graduation.

Furthermore, researchers shed light on other issues related to principal preparation programs (Lochmiller, 2015; Arshavsky, Edmunds, Miller & Corritore, 2014). In that case, research findings suggest that principals’ jobs may not be coordinated with principal preparation programs. Frye, et al. (2005) surveyed 156 department chairs in 126 principal preparation programs within the Southern Regional Education Board (SREB, 2005). SREB researchers found that not only were the principal preparation programs uncoordinated with the principals’ job realities, principal preparation programs failed to collaborate with the school districts to adequately supervise the candidates, and the candidates felt unsupported (2005). In fact, Frye, et al.’s (2005) research findings suggest that “only three states—Alabama, Maryland, and Texas—have standards that focus more on student learning-focused knowledge and skills” (p. 8). Even in these three states that have prin-
principal preparation programs with a focus on knowledge and skills, rigorous understanding of content-specific knowledge is still lacking. The authors believe that teachers’ STEM preparation via professional development or professional learning communities (PLC’S), spearheaded by principals who are knowledgeable and committed to STEM content, can have a positive impact on STEM matriculation (Capraro R.M., Capraro, M.M., Scheurich, Jones, Morgan, Huggins, Corlu, Younes, & Han 2016).

Impact of Principals on STEM

Moreover, research conducted by Branch, Hanushekl, and Rivkin (2012), support the premise that student educational outcomes are directly linked to a principals’ effectiveness, when measured by student achievement. For instance, Lai (2015) identified three leadership practices that can positively impact STEM instructional campus capacity: (1) support for teacher learning, (2) utilizing campus teachers’ expertise to mentor and coach teachers, and (3) flexibility within organizational structures (i.e., school’s norms and district external demands). As instructional leaders, principals are expected to be influential in affecting student performance on high-stakes testing especially for the target population of underprepared/underrepresented/underserved students. Relatedly, these researchers perceive that STEM-knowledgeable principals can positively motivate students to transcend the dismal national trends and become instructional leaders, especially in the advent of new mandates (Strauss, 2015a; Strauss, 2015b). STEM-knowledgeable principals can promote hands-on and minds-on instruction, particularly for students that have been underrepresented/underserved/underprepared in the STEM fields.

The fact remains there are few studies that investigate STEM-specific leadership as it relates to the principal (Lochmiller, 2015; Arshavsky, et al, 2014). For example, a study conducted by Sayed (2014) indicated that the principals’ role has changed “over the last decade, going from a role that revolved around “buses, boilers, and books” to one that centers on promoting high-quality teaching and learning in classrooms” (p.47). High-quality teaching and learning in classrooms can be supported by strong content-specific instructional leaders and can result in increased students’ success in STEM throughout college (Arshavsky, et al, 2014).

According to a statistical analysis report from the Institute of Education Sciences, “among Bachelor’s degree students entering STEM fields between 2003 and 2009, nearly one-half (48 percent) had left these fields by spring 2009. Some left STEM fields by switching their majors to a non-STEM field (28 percent) while others exited college entirely without earning a degree or certificate (20 percent)” (NCES, 2013b, p.14). Yet, the low retention in STEM education can change if content-specific instructional leaders lead by example by “setting high expectations, monitoring student progress, supporting teachers and parents, and helping students academically and socially” (Murakami, Garza, & Merchant, 2012, p.68). Successful school principals who have strong instructional leadership knowledge understand that improving students’ education outcomes cannot be accomplished without the adaptation of curriculum and instructional programs alone, teachers need to be included in this process (Goodwin, 2015; Fullan, 2006). Since 2001, NCLB mandated school districts to increase research-based classroom practices and teacher professional development in all content areas (Gurley, Anast-May, & Lee, 2015; Carraway & Young, 2015).

Furthermore, Fullan (2006) notes that building campus capacity begins with the effective implementation of the intended curriculum. Unequivocally, school principals need to possess the content-specific knowledge to deliver professional development to the campus teachers and to be able to influence rigorous instructional delivery (Klar & Brewer, 2013). Outstanding approaches in STEM teaching that focus on inquiry, standards-based and student-centered approaches can produce positive results. For example, one study in Texas investigated STEM teaching in high schools where students were engaged in learning, developing scientific literacy and utilizing project-based learning approaches. The results from this study indicated students increased knowledge and conceptual understanding, STEM interest in research, career, as well as gains in communication and collaboration skills. The researchers also found students utilizing a STEM model performed better in state tests as compared to their counterparts (Sahin & Top, 2015). In fact, mathematics attainment is the cornerstone to college access, degree completion, and to STEM pursuit and matriculation. According to two landmark studies conducted by the U.S. DOE, “the highest level of math taken in high school is the most powerful predictor of whether a student will ultimately earn a bachelor’s degree. Students completing Algebra II in high school more than doubled their chances of earning a four-year college degree” (Massachusetts Department of Elementary & Secondary Education, 2007, p.10). Relatedly, principals that understand struggling mathematics learners
can become more effective leaders (Morrison, French & McDuffie, 2015). For example, in one research study, university-based facilitators studied mathematics and cultural anxiety in eight algebra-based sessions with secondary principals from six surrounding school districts. As a result of the study, principals had greater confidence, more in-depth discussions of mathematics knowledge and reasoning and could understand struggling mathematics learners (Carver, 2010).

STEM Attainment in Texas

Notwithstanding research that indicates outstanding approaches in STEM teaching can potentially increase test scores, a persistent problem with high school graduates in Texas is they do not have the knowledge, skills, and abilities necessary for college mathematics and science work (THECB, 2015a). Moreover, the state’s 2009 accountability report, the Academic Excellence Indicator System (AEIS), indicated that compared to white students, minority students are less likely to: (a) score college-ready on SAT or ACT; (b) score college-ready on the state’s standardized assessments for graduation; and, (c) earn credit from advanced course work or dual enrollment (TEA, 2013-2014).

Texas aims to ensure students in high school are prepared for college with the creation of the Texas CCRS in 2007 (Gewertz, 2009). Since 2009, there have been consistent positive gains in the Texas students’ science achievement scores but Texas was not significantly different in their average science scores as compared to public schools in the nation (NCES, 2011). In 2011, Texas students’ science scores in the eighth grade were higher than the nation and as compared to other Mega-States – California, Florida, New York and Illinois (NCES, 2013a). However, more recently in Texas, legislative changes to mathematics education are inciting debate about the role of mathematics in Texas schools. In 2013, House Bill 5 unanimously passed -dropping Algebra II as a requirement for most students. The only track where Algebra II is required is in endorsements in STEM – science, technology, engineering and math and in other distinguished level tracks. Under the circumstances, teachers maintain that Algebra II is necessary for students in college tracks and that algebraic principles are used in everyday lives (Gross, 2014). Thus, the Texas graduation dropout continues, and is projected to get even worse in the coming years particularly among the Hispanic underprepared/underrepresented/underserved students (IDRA, 2010; THECB, 2015b). Moreover, many underprepared/underrepresented/underserved graduates will need remedial courses, when they enter postsecondary education, thereby increasing their likelihood of dropping out of college without a degree and reducing their earning potential to pay back college student loans (IDRA, 2014; THECB, 2015b).

Background for the STEM Future Action Research Project

The standardized accountability system in the state of Texas was the model governing our nation’s most comprehensive education policy, The Elementary and Secondary Education Act, commonly known as the No Child Left Behind Act (NCLB) (McNeil, Coppola, Radigan, & Heilig, 2008). Furthermore, the original NCLB mandates did not include school principals in any of the subject-specific professional development (Carraway & Young, 2015; USDE, 2001). More recently, the NCLB underwent a significant re-write, titled the Every Student Succeeds Act (ESSA) (Strauss, 2015a; Strauss 2015b). The reauthorized NCLB, now known as ESSA, has now allowed individual states to improve schools that are the lowest performing as well as schools with high dropout rates (Texas AFT, 2015; Strauss, 2015a; Strauss, 2015b). The shift to state control from ESSA necessitates increased states’ responsibility to provide rigorous education in STEM initiatives in order to prepare students for college, particularly in areas of concern like mathematics. Contrary to the NCLB, ESSA calls for states to be “developing and providing professional development and other comprehensive systems of support for teachers, principals, or other school leaders to promote high quality instruction and instructional leadership in science, technology, engineering and mathematics subjects, including computer science” (Strauss, S 1177-121, 2015b). Guidance for statewide administration under ESSA also states that state-wide agencies should utilize performance-based assessments in the form of projects, portfolios, and extended-performance tasks, and utilize universal design for learning principles to help students with challenging academic standards (Stonehill & English, 2015). Student knowledge and understanding, and scientific literacy has been shown to increase when students are engaged in project based approaches (Sahin & Top, 2015). While principals are integral to this change, the research we propose in this paper also suggests an approach that calls for a project-based learning style utilizing inquiry-based STEM teaching in an after-school setting for pre-service teachers and during the pre-principal practicum. The proposed research study focuses on future teachers and principals and their collaborative field-based experience to learn together and ulti-
mately, to lead together. These hands-on, inquiry-based experiences will provide a framework to teach future principals and teachers how inquiry is conducted using performance-based tasks in mathematics and science. These performance-based tasks will also incorporate universal design for learning principles, as outlined in ESSA, to offer alternate assessments and accommodations for all learners, particularly among our underserved and underrepresented Hispanic population.

**Intent and Timeliness for STEM Future Action Research Project**

Action research is a process whereby school personnel as well as teachers are able to “carry out investigations systematically, reflectively, and critically using strategies that are appropriate for their practice” (Efron & Ravid, 2013, p.4). Similar research projects involving afterschool STEM programs have used action research methods to help researchers understand “cycles of data collection and reflection to develop understanding” (Lingwood & Sorenson, 2014, p.41). In particular, a focus on inquiry through a model of initial training followed by sustained support and concentration on the curriculum and facilitation skills allowed for ongoing learning experiences (Lingwood & Sorenson, 2014). Pre-service teachers that master pedagogical skills in the classroom are given the opportunity to teach mathematics and science content supported by activities that engage students. Inherently, action research is “constructivist, situational, practical, systematic and cyclical” (Efron & Ravid, 2013, p.7).

Therefore, the intent of the Principal Preparation in STEM action research project is for pre-service teachers to teach mathematics and science content supported by project-based activities that engage students and enrich their school day experiences. In this case, principals, as collaborators, evaluators and instructional leaders as well as teachers can benefit from practicum experiences that train teachers and principals as STEM instructional leaders. A key element of this project is the concurrent preparation that pre-service teachers and pre-service principals will experience through continual reflection in their unique contexts. The pre-service principals will be the active instructional leader of an afterschool program where teachers will be working with a range of students and teaching from a pool of different mathematics and science lesson outlines. Pre-service teachers will adapt their teaching techniques based on the students’ individual needs. Thus, pre-service teachers, and pre-service principals, will conduct a continual cycle of evaluation -which involves an initial reflection on lesson outlines, an amendment phase, a re-teaching and reflection phase and finally a post-reflection. The researchers propose that a syllogism of STEM knowledgeable instructional leaders will positively impact teachers’ effectiveness and increase student matriculation in STEM fields.

**Timeliness for STEM Future Action Research Project**

This innovative novel model of simultaneous pre-service training for teachers and principals in a STEM enriched school setting will require that pre-service principals observe the pre-service teachers deliver the STEM lessons using the STEM lesson observation instrument. The aim of the mathematics and science lesson outlines is to provide the context for pre-service teachers’ to develop their pedagogical skills and to effectively implement lesson plans. Pre-service administrators will simultaneously develop their instructional ability in STEM lesson plans through observation and reflection of the pre-service teachers. The researchers believe that the STEM Future Action Research Project will positively contribute innovative instructional practices for training future principals and teachers. Relatedly, Lochmiller (2015) concluded that “the message that appears to emerge from the literature is that principals who exercise leadership in math and science do so for the distinct purpose of improving instruction in these content areas” (p. 31).

Innovative instructional methods and best practices like hands-on, minds-on STEM activities built on the promising idea of extending mathematics and science content to students will be utilized. Pre-service principals will also receive the STEM curriculum in a class setting, and they will be responsible for observing the pre-service teachers deliver the STEM curriculum at the school setting, ensuring that the pre-service teachers and principals understand the curricular objectives and expectations and establishing a mutual understanding amongst of STEM curriculum and activities. Pre-service teachers and principals will demonstrate and implement their instructional and leadership skill-set in a school setting, respectively. Moreover, both pre-service teachers and principals will simultaneously identify best instructional practices in mathematics and science lessons while gaining important field-based collaborative skills.

**Conclusion**

The purpose of this paper was to discuss the principal as a stakeholder to STEM attainment and to lay the groundwork for the Principal Preparation in STEM action research study that focuses on the integration of STEM programs in pre-service principal preparation.
The research design presented in this paper aims to increase the simultaneous STEM attainment of both teachers and principals. Ultimately, the expectations of school environments set by school principals and teachers filter into expectations for college readiness and can have positive impacts on student success.

References


*About the Author:* Dr. Puneet Gill is an Assistant Professor at Texas A&M International University. She has experience teaching science at the high school, middle school and early childhood level and has experience coordinating a mentoring program with an elementary school and university-based setting. Her Ph.D. is in Instructional Leadership from the University of Alabama with an emphasis in Social and Cultural studies of Education and an Educational Specialist degree in science education. Stemming from her interest in sex education policies and practices as it relates to science education classrooms, she has published in peer-reviewed journals such as *Sex Education: Sexuality Society and Learning* and has attended national conferences such as the American Educational Studies Association.
Student Service and Research at Tarleton

Experiences as an Undergraduate Research Assistant

By Sarah Titus, TSU Undergraduate Student

Tarleton State University provides a multitude of opportunities for leadership development along with academic growth. I was able to experience incredible opportunities working as an Undergraduate Research Assistant for a variety of projects while attending Tarleton. I believe these experiences helped develop me into the scholar I am today. Upon the start of my Junior year at Tarleton, I began taking classes within the College of Education which primarily focused on my future as a professional educator within the public education school system in the state of Texas. While taking READ 4309 Implementing Language Arts Across the Curriculum, I recognized my passion for learning about not only writing, but the process of writing and the effective practices to use when implementing writing strategies and techniques within the elementary classroom. The professor of the class, Dr. Laurie Sharp, invited me to apply for an Undergraduate Research Assistantship grant through Tarleton’s Office of Student Research and Creative Activities. After my grant was approved, I worked with Dr. Sharp throughout a 10-week research experience focusing on qualitative analysis of handwriting instruction concerning educators in the state of Texas. This handwriting study not only educated me concerning the state of education in Texas concerning handwriting instruction and technique, but the world that is academic research. Prior to this project, I did not have experience as a researcher for any type of project that was not assigned to me within the confines of the classroom for a graded project or assignment. The research we were conducting allowed me to serve as the actual researcher to delve into the data collected and analyze themes present and then categorize those themes. Later, those themes would be thoroughly explored and connections made between them.

The project I had the opportunity to work on with Dr. Sharp focuses on the question of handwriting instruction being outdated within Texas public schools. I was able to use an online database to research the history of handwriting, which then lead me to learn about the original study concerning this topic. I learned about the methodology of the study which included the exploration of the current state of handwriting instruction among currently practicing educators in Texas, the different types of coding techniques, the findings of the data, and the implications which pointed to a need for a more in-depth look at the topic concerning a larger number of teachers with a wider variety of teaching experiences which led to our project. While working on this project I learned about open and axial coding and the use of these techniques concerning the specific type of data being analyzed and/or categorized. I was also able to work on creating the research design where the social constructionist theoretical framework was used as our guide. I also learned how qualitative methodology of phenomenology was used to construct a data-driven inquiry regarding handwriting through teachers’ experiences throughout our study. The study allowed me to analyze the responses of a total of 39 respondents who were educators and members of the professional organization Texas Association of Literacy Education (TALE). I collected the data from a variety of survey questions. Using axial coding I was able to confirm the accuracy of the codes and group like codes into themes. During the third review of the data codes within each theme were reviewed to identify the presence of sub-themes. After coding the data I was able to create a set of 4 themes present throughout the data collection process. These included the Goal of Handwriting Instruction, Handwriting Pedagogy, Personal/Professional Perspective, and the Current State of Handwriting. Not only did participating as an Undergraduate Research Assistant teach me valuable data analysis skills specific to this project, but I was able to learn how to think outside of the box concerning analyzing data. It was crucial to not only be able to read and analyze the statements of the teachers, but to look for common themes and be able to classify their statements under those specific identified themes. At the conclusion of the project I was able to recognize that analyses revealed that most of the teachers in the study were supportive of the continued teaching of handwriting. Findings demonstrated a need for stronger teacher preparation and continued professional development with specific handwriting skills. We proposed that educators consider the possibilities afforded with technology and augment handwriting instruction accordingly to be a more relevant curriculum component well beyond legibility. Working on this research project further instilled in...
me a love of learning and the importance of being a lifelong learner. Learning how to analyze, code, interpret, and then present the data I found at the 2015 Tarleton Student Research Symposium allowed me to gain a set of professional skills and expertise that I otherwise would not have had the opportunity to experience. Dr. Sharp commented on the benefits of undergraduate research, saying “Participating in an undergraduate research experience is an extremely beneficial experience for both the undergraduate student and faculty mentor. Research experiences have traditionally been reserved for graduate students, who are typically experienced in a specific discipline and learning how to think more critically and deeply about that discipline through graduate coursework. Providing this same opportunity to undergraduate students allows them to broaden their perspective as they initially prepare for their sought discipline. Thus, when undergraduate students complete their respective programs, they are essentially ahead of the game as they enter the workforce. Undergraduate research experiences have the potential to produce better prepared professionals.” (Sharp, 2015)

While at Tarleton I have been an active member of the student organization Tarleton Educators for the Advancement of Mathematics. I have a passion for learning about effective techniques and the best practices to use specifically when teaching math to students in the elementary grade levels. When I found out that Dr. Faulkenberry, Dr. Smith, and Dr. Riggs were working on a project concerning pre-service educators and their views on mathematics, I was immediately interested. During the Fall 2015 semester I worked on my second Undergraduate Research Assistantship on the project titled Assessing Pre-Service Teachers’ Beliefs & Understanding of the NCTM Process Standards. This project was quite similar to the research I had conducted with Dr. Sharp concerning the handwriting study as I was analyzing data provided from the respondents (in this case, the Tarleton State pre-service educators) concerning their comprehension of the standards of the National Council of Teachers of Mathematics. I was able to code the data and look for a variety of 20 different pre-determined themes that lay within the respondents’ essays concerning their mathematics background. The students wrote about what mathematics is and how to teach mathematics effectively to their future students. As I identified themes I learned how to correctly rank the themes from a scale of 1 to 2 as I identified each theme in the response of the individual pre-service educator.

Much like with Dr. Sharp, I was able to work with Dr. Beth Riggs in the Mathematics Department to learn about the variety of skills necessary for analyzing and interpreting the data. I learned about the importance of reading the responses thoroughly and checking for the presence of the 20 different themes. I then worked with Dr. Riggs concerning how to best determine the level of the theme concerning a positive or negative view from the student where I used the rating scale from -2 to 2. Working on this project allowed me to develop additional data analysis tools and skills, and allowed me to gain a thorough understanding of pre-service teachers’ beliefs and how those beliefs change over time. Since this study had been done over the course of 2 years, the students’ outlooks could change and develop. The development of beliefs throughout the three different mathematics education courses from the respondents allowed me to build upon my solid foundation of understanding concerning the importance of a higher education and building upon classes to succeed.

This semester, during the spring of 2016, I am looking forward to working on my third Undergraduate Research project. I will be working with Dr. Jim Gentry in the Department of Curriculum and Instruction concerning the effectiveness of the case study done as an assignment in READ 3384. I am very excited to work on this research project as this data will be composed of both qualitative and quantitative which I am looking forward to learning about analyzing.

Dr. Beth Riggs stated that, “As an undergraduate research assistant, Sarah will be involved in all aspects of the research as we assess preservice teachers’ beliefs and understandings of the NCTM Process Standards in mathematics. Her involvement in a research project such as this one can help her to become a more reflective practitioner in her future classroom, and she will be better equipped to meet the needs of her students who may come from diverse academic backgrounds.” (Riggs, 2015) What Dr. Riggs said about my experiences as an Undergraduate Research Assistant definitely rings true. Participating in these research projects and serving as an assistant throughout the process allowed me to develop the skills necessary to assist a variety of students, as well as my future fellow teachers, who all come from various backgrounds. Understanding how to find the common denominator with multiple responses, or in my research the different themes within the data itself, allowed me to develop the ability to locate commonalities and recognize their
characteristics. Thus, I am able to better make connections between ideas and themes which upon first glance may have seemed polar opposite. Dr. Sharp also commented on the importance of undergraduate research and the positive impacts it has both for the professor serving as the mentor as well as the student. She stated, “With respect to the faculty mentor, working with undergraduate students engaged with research endeavors is extremely rewarding. I myself have aligned my own scholarly agenda with the research interests of undergraduate students whom I have mentored. Together, we have made scholarly presentations at local, state, and national venues and also written scholarly publications. I am very proud of the work that we have produced within the field of education and literacy.” (Sharp, 2015) I have thoroughly enjoyed my experiences as an Undergraduate Research Assistant at Tarleton and am looking forward to applying my knowledge and skills as an educator in the public schools of Texas.

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About the Author:

See Tarleton Stars for more information about Sarah Titus.
Tarleton Spot Light in Teacher Education

Digital Literacy Development in Teacher Education Programs

By Julie M. Ward

This manuscript examines the importance of digital literacy development and technology integration in teacher education programs. Traditional students currently enrolled in teacher education programs are referred to as “digital natives” in a world that is overrun by technology. These students have been raised with technology readily available from a very young age. They use it in their daily lives and understand it better than “digital immigrants”, or those who are not as familiar with technology. Digital literacy development in schools is critical for student engagement, implementation of 21st century skills, and differentiated teaching and learning styles. A common barrier to technology integration is teachers’ lack of technology skills and training. The need to infuse digital literacy throughout the curriculum is essential for innovation and academic engagement. It is critical for teacher education programs to incorporate technology education into the curriculum to better prepare new teachers for the 21st century classroom.

Background of Study

The term “digital native” was coined by Marc Prensky. Digital natives have been raised with technology readily available from a very young age. They use it in their daily lives and understand it better than “digital immigrants”, or those who are not as familiar with technology. Traditional undergraduate students who are currently enrolled in teacher education programs are expected to be able to integrate technology into lesson plans and classroom environments. A common assumption is that current undergraduate students are naturally able to utilize technology as a tool in the classroom. These students are able to use technology for personal use, but do not understand how to infuse it into the curriculum. Many teacher education programs do not incorporate digital literacy and technology education into their degree programs. Tarleton State University requires students to attend a technology lab as part of their teaching education program. This lab affords students the opportunity to not only learn new technology tools and skills, but also how to infuse these findings into curriculum and lesson planning. The lab is a semester-long course and bridges with the Professional Development I course. I began teaching the technology lab in the fall of 2014. I had worked in the PK-12 environment for thirteen years prior to making the switch to higher education. My assumption was that students in the teacher education program would be more familiar with technology and be able to integrate it into lesson plans with ease. I could not have been more wrong. Although these students know how to use many technology devices, social media platforms, and smartphones for personal use; integrating these tools into curriculum and lesson plans poses a challenge. These students are also not aware of how to use many computer programs, perform file management, and work collaboratively through the use of technology. I feared that students would be bored with the curriculum for the lab because they would already be familiar with this information.

Teacher Education Program Preparation

Throughout the technology lab students learn file management techniques, including cloud storage and data backup options. Students also learn the importance of technology integration and professional development. Students learn about a multitude of technology tools and integration practices throughout the semester. We live in a digital age of information and technology is ever-changing. One of the greatest challenges teachers face today is the barrier between differing technology skillsets between themselves and students. Teachers are charged with engaging students and providing quality curriculum to students who are known as digital natives, the speakers of technology, fluent in the digital language of computers, video games, and the Internet. Those who are not digital natives, are often coined digital immigrants, having adopted many aspects of the technology, but just like those who learn another language later in life, retain an “accent” because one foot is still in the past (Prensky, Listen to the natives, 2006).

Students today have grown up using technology on a daily, sometimes continuous, basis (Linik, 2012). Students are constantly “wired”, or readily available and connected via the use of technology at any given time of day. The digital age has afforded the ability for people, not just students, to access information at their fingertips. The days of looking up information in a book or encyclopedia
are long gone. Those resources are still used, however, they are accessed digitally and the information is readily available regardless of location. School districts have implemented educational technology departments, instructional technology leaders, and professional development for teachers to learn innovative technology tools and integrate them into their classrooms. Billions of dollars are spent each year by districts across the United States on technology training and integration, yet there are still numerous teachers who balk the system and refuse to utilize tools they are not comfortable or familiar with in their classrooms (Prensky, Listen to the natives, 2006).

21<sup>st</sup> Century Classroom

“The key change and challenge for all 21<sup>st</sup> century teachers is to become comfortable not with the details of new technology, but rather with a different and better kind of pedagogy: partnering” (Prensky, 2010, p. 3). Today’s students want to learn differently than in the past. Educators must be able to allow students to not only be technology users, but also experts. No one student knows everything about technology, but students often know more and are more comfortable with the tools than the teacher. This is where the term “partnering” comes into play. Teachers and students partner together and teach each other. Students feel a sense of pride and power in the classroom which allows the teacher to integrate the curriculum through the use of digital literacy (Prensky, 2010).

One of the greatest benefits of digital literacy and technology integration is the ability to collaborate, communicate, create, and think critically. Digital tools are like extensions of students’ brains (Prensky, Listen to the natives, 2006). Why not utilize the tools students are familiar with and have readily available to engage and provoke students in the curriculum? Instead of looking at technology as a distraction, teachers should welcome it into the classroom and allow it work as a tool for innovation and student engagement. Educators need to step outside their comfort levels and learn with the students. As educators, learning is the focus in the classroom. The days of a stand and deliver classroom setup are dying out and collaborative environments are taking over. Technology is at the center of this new age type of learning environment. Students do not all learn the same way, and rarely do they all have something in common. Technology is the outlier. Today’s students, whether they have the devices at home or not, are familiar, comfortable, and willing to experiment with technology. It offers the ability for a multi-dimensional classroom, diverse learning experiments, and a multitude of innovative experiences (Beavis, 2013).

Educational Technology Components

21<sup>st</sup> Century Skills. The most commonly referenced 21<sup>st</sup> century skills are collaboration, communication, creativity, and critical thinking, known as the four C’s. These skills drive the idea of digital literacy. There are multiple technology tools and programs which enable students to utilize 21<sup>st</sup> century skills. Students are empowered to learn and synthesize information when given the freedom to work together and the ability to use technology tools within their learning. Digital literacy has provided students a method of learning by which they are able to use technology to go beyond the four walls of the classroom. Students today are able to work with other students and experts around the world from a single device. Access to information is immediate and students are able to build on that information using the plethora of online resources.

The ability to find and select information. The creation of the Internet made accessibility of information simple. The challenge is to select appropriate and valid information. As the Internet has grown and developed, there is an array of both good and bad information available. Educators are charged with teaching students how to access valid information and how to sort through everything on the World Wide Web. Custom web searches, filters, and Boolean operators have provided some ease of access, but there is still a plethora of bad information posted on the web. Educators must first learn how to decipher good from bad information and then model that behavior for students to understand (Becker Jr., 2009). Students often “Google” a topic and take the first hit as truth, without checking the validity of the source. Anyone can post anything on the web. Information is quick and readily available, but it must first be analyzed.

Cultural and social understanding. Technology is available across the globe allowing students to learn and think more culturally diverse. The ability to take virtual field trips, talk with students and educators across the world, and gain insight and understanding is made readily available through the use of technology and digital literacy. Tools such as Skype and Google Apps for Education have allowed classrooms to transform into culturally diverse learning environments. Teachers are able to collaborate with one another across the globe and share their resources and experiences with one another. An international field trip is very
unlikely at most districts, but a virtual field trip can happen on a whim. Students are able to be exposed to culturally diverse environments without leaving the comfort of their own classroom.

E-safety. Digital literacy is founded on the web and access to information. Safety is a critical factor for students when accessing information electronically. In prekindergarten through twelfth grade, there are often filters established while on the school network. Not only are the filters not foolproof, they also provide a sense of security that is not realistic when accessing information elsewhere. Students are susceptible to a multitude of bad and deviant information, from gambling sites to pornographic material. The Internet has grown into a pool of information that can be used for various reasons, including luring young children into a world of crime, sex, and drugs. Explicit material is just as easily accessible as educational content. Sometimes students stumble across inappropriate content by mistake and are lured into a world they do not understand nor are they able to escape sometimes. Internet safety is one of the most important and critical elements for parents and educators to teach children beginning at a very young age. The more educated students are about Internet safety, the more likely they will practice those skills while online.

Functional skills. Students must possess functional skills, basic skills required to be a functional member of society. These skills must first be established in order for students to use technology effectively. Functional skills are built upon from a very young age. Children learn to act independently and how to utilize specific skills and abilities based on situations, wants, and needs. In order for students to be able to integrate technology into their learning experience, functional skills must first be established and understood by both the student and teacher.

Conclusion
The role of technology in the classroom is becoming more and more importuning in the digital world we live in. Educators are not only challenged, but also empowered with the ability to engage students through the use of technology and innovation. The idea that teachers are the experts and should stand and deliver information is far from the norm these days (Beavis, 2013). Of course, there are “old school” educators who refuse to branch out and embrace the technological world, but they are quickly exiting the school systems. New age teachers have also grown up with technology at their fingertips and are compelled to integrate it into their curriculum and pedagogical beliefs. Technology is not a one-size-fits-all tool. It provides the ability for educators to engage students and infuse information from a variety of sources. Unlike traditional theories, technology is ever-changing, therefore research is constantly being conducted, date being collected, and new technology tools are being created and added to the classroom (Prensky, Listen to the natives, 2006). Digital natives are far more prominent in schools today. Educators should embrace them and empower them as a resource within the classroom. The need for teacher professional development is becoming more prominent in order to empower teachers so they are able to infuse technology into the curriculum and maintain engagement for students. Teachers and students alike need to learn how to use technology as a learning tool. There is a vast difference in knowing how to use technology and being able to integrate it into the classroom as an effective learning tool.

References

About the Author:
Ms. Julie M. Ward is a Visiting Assistant Professor in the Department of Curriculum & Instruction at Tarleton State University. She has thirteen years of experience in PK-12 education and has held such positions as Library/Media Specialist and Instructional Technology Coordinator. Her research interests include technology professional development in PK-12 education and the effects of technology integration on student engagement and success.
Educators at all levels have been challenged with accountability measures that include student learning outcomes as well as completion rates. In an attempt to meet these accountability standards schools and universities have sought new ways of adapting quickly to changing needs. Many changes fall into the category of “instructional innovation” and teachers are confronted with whether or not to adopt or incorporate new technologies, strategies, content applications and experiences into classrooms or courses. Rogers (1995) defined an innovation as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (p.11). The key to understanding an innovation is the “newness” of the idea. For Rogers, “If the idea seems new to the individual, it is an innovation” (p.11). Lee (2008) observed that, “[Instructional] innovation can only be created through education that focuses on cultivating creativity for both teachers and students” (p.43). Lee has further hypothesized that, “Instructional innovation has positive influences on students’ learning satisfaction” (p.46). Cohen and Ball (2000) clarified the concept of instruction, noting “Although many people think of instruction as what teachers do, we define it as interactions among teachers, students and content, in environments … Instruction thus is not created by teachers alone, or students, or content, but in their interactions” (p.3).

In the context of interaction, instruction is a multifaceted process that involves teachers, students, content, delivery systems or strategies, and environments. Innovation involves the introduction of new ideas, technology or strategies into the learning process. Instructional innovations then impact student learning outcomes, student engagement and satisfaction and student success or completion. Figure 1 illustrates these components as a theoretical framework for instructional innovation and is a modification of Lee’s (2008) research framework.

If instructional innovation involves not only the inclusion of new teaching strategies, technology, content and environments, then the anticipated results of such innovations would impact student learning outcomes reflected in higher course grades or higher scores on external state assessments or certification/licensure exams. Instructional innovations would also result in greater student engagement or, “the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning…which extends to the level of motivation they have to learn and progress in their education” (2014, Glossary of Education Reform). In addition to student engagement, students would also have greater learning satisfaction, which Moore (2009) defined as “Students are successful in the learning experience and are pleased with their experience” (p. 74). Sweeney and Ingram provid-

Figure 1. Theoretical framework for instructional innovation.

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<td>STUDENT ENGAGEMENT AND SATISFACTION</td>
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ed a similar definition, “The perception of enjoyment and accomplishment in the learning [process and] environment” (p. 57). In addition to outcomes and engagement and satisfaction, instructional innovation should also impact student success of completion of an educational program. Hearn (2006) has noted that “Defining student success and effectively measuring it at the student and institutional levels is not nearly as straightforward as it might seem” (p. 1). He continues by suggesting that success ranges from graduation or completion rates to other factors such as value added measures.

Instructional innovation is grounded in newness to both the teacher and students as a way of learning. It involves the interactions of students, teachers, content, technology, and classroom environments. By using the theoretical framework, educators can begin to examine appropriate strategies for classrooms.

What Does Instructional Innovation Look Like in the Classroom?

Instructional innovation can take many forms. What first comes to mind is typically technology innovation for instruction or better known as educational technology. Roblyer (2016) provides this apt description “Today’s educators tend to think of educational or instructional technology as devices or equipment – particularly the more modern, digital devices, such as computer, cell phones, and tablets” (p. 3). As a society, the tendency is to focus on the latest and greatest apps. Educators need to focus on educational technology that enhances pedagogy. “Emergent technologies offer opportunities to understand concepts in deeper, often different, and more meaningful ways. However, this growth in understanding will occur only if teachers learn to use these technologies in effective ways” (Dilworth, Donaldson, George, Knezek, Searson, Starkweather, Strutchens, Tillotson, & Robinson, 2012, p. 130). Some educators can fall into the trap of using technology for technology’s sake just to proudly proclaim that they are purveyors of technology. Countless colleagues make this claim even though the extent of their technology use is PowerPoint. While PowerPoint has its strengths in the classroom, there are definitely more engaging tools available. With the plethora of educational apps available it is important to not become stagnant or be afraid to try new things.

To be truly innovative with technology, educators need to understand students’ capacity to learn and use technology. The students are digital natives and use computing devices as easily as older generations used pen and pencil. In planning instruction, teachers need to meet the students where they are in order to engage them with the content and motivate them to learn. If students believe the content or mode of delivery is outdated they tend to not be motivated to learn. As Gillard, Bailey & Nolan (2008) point out our students “eagerly try each new gadget or gizmo and somehow anticipate that we, too, are familiar (or an expert) with the product” (p. 21). Today’s students not only embrace technology, they expect it. It’s important to “demonstrate life-long learning skills as we examine new innovations, determine which are beneficial to our professional life and our students’ futures, and adopt those that are appropriate” (Gillard et al, p. 22).

With ubiquitous (any time, anywhere) access to information, finding apps that enhance pedagogy has never been easier. It only takes time and a little effort to locate and experiment with apps appropriate for any class. Whether novice or expert, a great place to start is the Top 100 Tools for Learning (http://c4lpt.co.uk/top100 tools/). Every year, educators and workplace trainers around the world vote on the top tools for learning. This website not only ranks tools, but provides links to these formidable tools. Some are free, some are modestly priced and some are marketed for enterprise use by a school district or large organization.

Instructional innovation is not limited to educational technology. It can be a new instructional method or assessment or as Ellis (2015) aptly described it, “an instructional method – whether a teaching method or an assessment method – may be perceived as innovative by students when they have never experienced it before or they did not expect to encounter it in a particular course” (p. 111). Currently, the flipped classroom and active learning are trending.

The flipped classroom model described by Fraga and Harmon (2015) is,

What generally occurs during class time, such as lectures and demonstrations, occurs at home or out of class, and assignments typically expected to be completed out of class occur during class time. The idea is to allow more efficient and effective use of the instructor’s time during class to provide the necessary scaffolding and guidance students need when engaged in applying newly learned information. (p.18).

Such a process has also been called inverting the classroom. Many variations of this concept include: flipping a single lesson or
Flipping a course requires a lot of up-front work and takes time, especially if teachers create their own videos. Time is a precious resource that many teachers just don’t have, so an alternative is using existing videos that can be just as effective. Resources for existing video content are Khan Academy (http://www.khanacademy.org), Merlot (https://www.merlot.org) and OER Commons (https://www.oercommons.org). All content on these web sites is considered open education resources (OER). The Hewlett Foundation (n.d.) defines OER as “high quality, openly licensed, online educational materials that offer an extraordinary opportunity for people everywhere to share, use, and re-use knowledge” (paragraph 1).

While the flipped classroom has not consistently equated to higher student academic scores, Ogden (2015) found that “students felt that the flipped classroom teaching approach provided them more time to ask their instructors questions” and “the flipped classroom approach utilized multiple instructional components that supported their individual needs” (p. 790). In simpler terms, students were more engaged with their learning.

Another instructional innovation that is trending today is active learning. Miller & Metz (2014) define active learning as “an instructional method in which students become engaged participants in the classroom through the use of in-class written exercises, games, problem sets, audience-response systems, debates, class discussions, etc.” (p. 246). Edwards (2015) further notes that active learning “requires students to intellectually engage with the content using critical thinking or higher levels of thinking such as analysis or synthesis” (p. 26). In Table 1, Edwards provides the following examples of intellectual, social, and physical active learning strategies.

To accommodate active learning, even the design of classrooms has changed. It is not uncommon to see rooms with no desks, or to see furniture configured specifically for collaboration. Gone are the days of orderly classrooms with desks in neat, symmetrical rows. Active learning classrooms are “designed for students to be actively engaged with each other rather than centrally focused on an instructor lecturing” (Petersen & Gorman, 2014, p. 66). In many cases, there is no teacher desk in the front of the room. Teachers are mobile and constantly moving, working with students individually and in groups. These classroom configurations have begun to pay off. Brooks (2011) found that, Students taking a course in a technologically enhance environment conducive to active learning techniques outperformed their peers who were taking the same course in a more traditional classroom setting. The evidence suggest strongly that technologically enhanced learning environments... have a significant and positive impact on student learning. (p. 719).

When examining classrooms where instructional innovation is taking place, it could look more like chaos than traditionally quiet places of learning. Classrooms are full of energy, movement, and collaboration. Students are actively engaged with the content and each other. The teacher is mobile, mov-

### Table 1. Examples of Intellectual, Social, and Physical Active Learning Strategies

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<tr>
<th>Intellectually Active Learning</th>
<th>Socially Active Learning</th>
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<td>• Whole Group Discussions</td>
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<td>• Inquiry Activities</td>
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<td>• Problem-solving Activities</td>
<td>• Small Group Projects</td>
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<td>• Synthesizing research for</td>
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<td>what they have learned</td>
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*Note: Adapted from “Active learning in the middle grades,” by S. Edwards, 2015, Middle School Journal, 46, (5), p.27.*
ing around the classroom facilitating learning with individuals and groups; no longer the “sage on the stage.” In applying these examples of instructional innovation for the classroom, it is helpful to refer back to the framework. Questions that should be asked include: (1) Will the instructional innovation improve student learning outcomes? (2) Will the instructional innovation increase student engagement and satisfaction? and (3) Will the instructional innovation lead to greater student success or program completion?

References


Petersen, C.I., & Gorman, K.S. (2014). Strategies to address common challenges when teaching in an active learning classroom, New Directions for Teaching and Learning, 137, 63-70.


About the Authors:

Dr. Don M. Beach, is a Regents Professor at Tarleton State University in the Department of Educational Leadership and Policy Studies. For the past 35 years, Dr. Beach has been professor of Educational Administration at Tarleton. He continues to conduct workshops at state and national levels and publish in professional journals.

Dr. Kelley Shaffer is the Director of the Center for Instructional Innovation for Tarleton State University where she directs faculty development and innovation in teaching, academic computing, and the Learning Management System (LMS) for the university. As an Assistant Professor for the college of education, she teaches graduate courses in educational media and technology. She has taught higher education technology courses for over ten years and presented at numerous conferences on educational technology and has authored two textbooks.
ESP Bookshelf: Mindsets—Help Them Grow

Dr. Rebekah Miller-Levy

In this edition of ESP, the Bookshelf focuses on resources to address mindsets. Often students feel they cannot change who they are as students and as people in general. Current research on mindsets debunks this idea. Mindsets are a matter of the mind and are changeable.

This is a partial bibliography of resource, picture books, and informational books dealing with fixed and growth mindsets.

Teacher Resources

Dweck, C. (2007). *Mindsets: The new psychology of success*. Ballantine Books. ISBN 978-0345472328. Dweck’s groundbreaking research on success offers an alternative to the idea that abilities and talent are what make success. She suggests, while abilities and talent are components of success, the critical component to success is the way a person approaches tasks and deals with mistakes. A student with a fixed mindset will give up when faced with a challenge while a difficult task challenges a student with a growth mindset.


Ricci, M. C. (2015). *Ready-to-use resources for mindsets in the classroom: Everything educators need for school success*. Prufrock Press. ISBN 978-1618213969. This companion book to *Mindsets in the classroom: Building a culture of success and student achievement in schools* provides a variety of tools to get started building a classroom that fosters a growth mindset. It includes “ready-to-use, interactive tools such as planning templates, letters for parents, preassessments, compare and contrast charts, online resources for parents, lists of books that teach perseverance, handouts that teach students about their brains, self-reflection checklists, surveys, and a unique study guide for the original book.”

Student Resources (Fiction)

Note on reading levels – I’ve included reading levels for the picture books, however, all the books on the list are appropriate for any age reader when used with age appropriate higher order thinking questions for discussion.


Rosie dreams of inventing something fabulous. Her first invention is a disaster but with the help of her Aunt Rose, Rosie realizes you only fail when you quit.


Cook, J. (2015). *I can’t find my whatchamacallit!* National Center for Youth Issues. ISBN 978-1937870386. Elementary. Two cousins, Cletus and Bocephus, are very different. This story highlights the need for organization in a creative, applicable way to utilize the strengths we all have inside us.


Rago, J. (2012). *Ryan the spy and: The superhero secret: A growth mindset series*. CreateSpace. ISBN 978-1470188023. Primary. The first book in the Ryan the spy series. The series focuses on the attitudes and hard work required to be super at anything and everything. Series includes *Ryan the spy and: The superhero secret; Ryan the spy and: The inventor’s secret; Ryan the spy and: The treasure hunter’s secret; and Ryan the spy and: The super spy squad secret*.


Spinelli, J. (2010). I can be anything! Little, Brown Books for Young Readers. ISBN 978-0316162265. PS – 1. This rhyming text challenges the reader to consider all the possibilities of choices open to he grows up.


Student Resources (Nonfiction)


Tarleton Stars is an award given to current and past Tarleton students based on recognition for outstanding contributions in the classroom. Administrators, faculty members and ESP members are all eligible to nominate candidates for this award. Nominations for 2017 must be submitted to Dr. James Gentry, JESP Editor and received by December 1st, 2016.

2016 Tarleton Stars Recipients

Michelle Oney Spradley             Sarah Titus

Since 2000 Michelle Spradley, a Tarleton graduate, has dedicated her life to teaching students from a variety of backgrounds. She began her teaching career as a second grade teacher in Temple, TX, where she taught for three years. The remainder of her experience has been in Midlothian ISD where she has taught kindergarten, second grade and third grade as well as being an inclusion teacher for first through third grade. As a mentor teacher, she has worked with clinical teachers providing direct experiences working with young children and their families. Michelle holds certificates as an elementary generalist teacher along with certifications in reading, special education and speech communications.

In her classroom, students are always involved and learning. She provides multiple opportunities for her students to understand and excel. Her classroom is a magic place for kids, clinical teachers, fellow teachers and parents. She loves what she does, and that is evident in her many success stories. While in her class, students look forward to going to school. When they are out of her class, her students remember her with fondness and a strong love for learning. Often they say, “I wish Mrs. Spradley was still my teacher!” She is an exemplary teacher in every way.

All of these qualities place Michelle proudly as a Tarleton STAR.
Sarah Titus was raised and grew up in Keller, Texas with her parents and her younger sister. It was while attending Westlake Academy, an International Baccalaureate school, that she developed her love of learning and education. Sarah served as a summer camp counselor at YMCA Camp Grady Spruce for four summers throughout high school and college, and it was there that she realized she had a passion for teaching children and molding them into the leaders of tomorrow.

Sarah attended Tarleton State University where she pursued her degree in the College of Education and the Honors College. Throughout her collegiate years she was a member of Alpha Gamma Delta, Collegiate FFA, Renaissance Scholars, TSU Stock Horse Team, and Tarleton Educators for the Advancement of Mathematics. Sarah served as a Residential Leader in the Honors residence hall her sophomore and junior years, and also served as the President of the Tarleton Scholars Society. She traveled to Italy with the Honors College for two consecutive summers where she studied the Italian Renaissance and the backgrounds of western literature and also completed a personal study focusing on Dante’s *Inferno* while traveling to Amsterdam, Paris, Florence, and Sirolo with a focus on studying art and literature.

Sarah participated in three undergraduate research projects throughout her undergraduate career. She served as a researcher for a project in the Department of Curriculum and Instruction which focused on a handwriting study of teachers’ perspectives, a project in the Department of Mathematics which focused on assessing pre-service teachers’ beliefs and understanding of the NCTM process standards, and a project in the Department of Curriculum and Instruction focusing on the effectiveness of the case study project in READ 3384. It was while serving as an undergraduate research assistant that Sarah developed her interest in research concerning both quantitative and qualitative data analysis.

Sarah plans on continuing her education in the pursuit of becoming an Educational Diagnostician. Sarah graduated from the College of Education with her degree in Interdisciplinary Studies with a focus on Special Education, and a minor in English. She currently teaches fourth grade at Keller ISD.

Her dedication to being the best educator she can be makes Sarah a true Tarleton STAR.
On-Line Nomination Form

Describe in narrative, the significant accomplishments of the nominee and why you believe he/she should be recognized as a Tarleton Star in the 2016 edition of *The Journal of the Effective Schools Project (JESP)*.

Submit nominations on-line to

http://goo.gl/forms/ztqDFbZ3nJ

Please send a digital photo to Dr. Robin Pate (editor@thejesp.org) no later than December 31st, 2016.

*Remember, nominees must be either a current student or graduate of Tarleton State University.*

Preferably, the digital photo of your nominee should be an action in teaching or other working situation.
Call for Papers

The Effective Schools Project (ESP) at Tarleton State University is dedicated to the goals of improving school effectiveness, raising the achievement level of public school students, and improving the professional development of pre-service and in-service educators. Established in 1988, ESP seeks to unite the efforts of public school educators and university faculty in striving for continuous improvement.

The official publication of ESP is *The Journal of the Effective School Project* (JESP). The journal is dedicated to the dissemination of information, ideas and research among the participants in ESP, as well as, other interested educators. Published annually, each issue of the journal focuses on a particular theme, but consideration is given to non-thematic articles.

The theme for the 2017 edition will focus on awakening the drive of teachers to excel, explore, and, thus, engage all students (K-12). Action research regarding engagement with the community and students in the classroom are welcome. Therefore, engagement practices considering all students’ (K-12) diverse learning and social needs will allow readers to reflect and consider engagement practices at their respective schools and communities.

Specifically, discourse regarding the awakening of engagement style instruction and communication will be of value to educators seeking to engage students daily. We hope to be able to offer practical solutions educators are willing to implement in the K-12 setting.

**Volume XXIV 2017**

“Awakening of Educators to Excel, Explore, and Engage Students”

Submission Deadline: December 31, 2016

*THE JESP SUBMISSION PROCESS...*

*JESP* has moved all submissions and reviewing to an online system to better meet the needs of the ESP schools and authors who share their work with us.

To submit a manuscript for review with *JESP*, please go to [http://www.thejesp.org](http://www.thejesp.org) and click on *For Authors*. Follow all instructions for registering with us and upload your manuscript. You will hear from us soon.

Sincerely,

James E. Gentry, Ed.D. Editor
Manuscript Submissions

The Journal of the Effective School Project solicits articles dealing with field-based, or action research; descriptions of successful programs or practices designed to promote school improvement or increase student achievement; the application of effective schools research to the design and delivery of educational programs; descriptions of classroom practices or instructional strategies; position papers; reviews of literature; or historical perspectives. Generally, articles selected are those written in an informal, practical, and readable format.

The Journal of the Effective School Project editorial committee will evaluate articles submitted for publication consideration. Manuscripts must adhere to the following guidelines to be considered:

1. **Length:** The manuscript, including references, charts and tables generally should not exceed ten typewritten pages.

2. **Style:** Manuscripts must conform to the *Publication Manual of the American Psychological Association* (2009, 6th ed.).

3. **Cover Letter:** Submit a cover letter explaining the relationship of the article to the theme of the journal. Indicate that the article represents original material and is not currently under consideration by any other publication.

4. **Cover Page:** Include the following information on a separate sheet: title of the manuscript; author's name, complete mailing address, business and home phone numbers, institutional affiliation and address; biographical information about each author (not to exceed 50 words per author).

5. **Abstract:** Following the cover page, submit an abstract of 100 to 150 words and short biography of the contributing authors.

6. **Photographs:** All photos embedded in the manuscript have participants’ permission to be included in the manuscript for possible publication. Students who are younger than 18 years old have guardian consent for their photographs to be displayed in the manuscript for possible publication. Space is limited. Please submit only 1 or at most 2 photos if your manuscript requires photos.

7. **Figures/Tables/Charts:** Again, due to limited space, a maximum of one (1) figure, table, or chart no larger than a standard published page will be allowed.

SEE EXAMPLES OF PAST MANUSCRIPTS:


Authors Register and Submit manuscripts at [http://www.thejesp.org](http://www.thejesp.org)

After initial review by the editor, articles that meet editorial specifications will be sent to the Editorial Committee. The journal editor reserves the right to make editorial changes, but any proposed changes will be discussed with the primary author prior to publication.
The Jim Boyd Effective Schools Project

Tarleton State University’s Effective Schools Project (ESP) has evolved into one of the nation’s largest and longest running school improvement ventures. With the Effective Schools research as its foundation, ESP is a school improvement network linking the Tarleton faculty and campus leadership teams from over seventy Texas schools in an ongoing study and dialogue designed to enhance school effectiveness.

**Effective Schools Conferences**  Effective Schools Conferences are at the heart of ESP. This annual series of conferences and seminars provides members with current research and theories, as well as practical methods and strategies from the nation’s most prominent educators and reformists. The conference series is organized around a school improvement theme broadly associated with one or more of the correlates of Effective Schools.

**Campus Planning Retreat**  In March, ESP leadership teams are invited to attend a planning retreat. During the retreat, school leadership teams are able to evaluate their school year to date, to reflect on the research and other information received at ESP conferences, to refine their campus improvement plan, and to exchange ideas, goals, and triumphs with other campus teams.

**The ESP Journal**  *The Journal of the Effective Schools Project* is the official publication of ESP. The journal is dedicated to the dissemination of information, ideas, and research among the participants in ESP, as well as other interested educators. Published annually, each issue of the journal focuses on a particular theme, but consideration is given to non-theme articles.

[thejesp.org](http://thejesp.org)

[www.tarleton.edu/esp/Journal/index.html](http://www.tarleton.edu/esp/Journal/index.html)

*For more information about The Jim Boyd Effective Schools Project, please contact:*

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817-717-3334  
[winn@tarleton.edu](mailto:winn@tarleton.edu)
ESP Planning Retreat, 2016
Fort Worth, Texas
“Life’s a Beach When You Teach”

Join us for the 2017 Planning Retreat
at a location to be announced
“Awakening Your Teacher Force”