

2013

# Transforming Educator Preparation Grants

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The Clinical Simulations for Teacher Education project uses Benjamin Dotger’s carefully designed profiles of simulated parents/administrators/paraprofessionals implemented by specially-trained local actors to engage multiple teacher education candidates in the same experience, one at a time.

Three objectives guided the work of the Clinical Simulations project:

- To help candidates develop their communication and parent conferencing skill sets
- To encourage candidate reflection in the areas of communication and working with parents
- To simplify the process of using video for candidate reflections

The first two outcomes were measured by a modified survey assessing teacher confidence levels on a four-point scale from “Very Worried” to “Very Confident” (Turley, Powers, & Nakai, 2006) focusing on the skills needed to engage in a parent conference about bullying. This survey was given before the simulation and again after candidates had the opportunity to reflect on the video of their conference. A written reflection about the experience was also gathered from each participant directly following the parent simulated conference.

Through their reflections, generally candidates reported that the conference “felt realistic in many ways” and was “good practice for the real world.” They also reported feeling successful with a hint of hesitance about watching the video recording: “I feel like I did an okay job overall . . . I hope!” With regard to the survey results, more candidates reported an increase in confidence level on “Communicate with and involve parents” (53% of candidates increased one level) and “Handle student conflicts” (47% of candidates increased one level). Interestingly, one candidate on each item (6%) reported a decrease in confidence level. These candidates both shifted from “very confident” to “somewhat confident” which may have resulted from them facing a realistic parent-teacher conference. Although the N is small (17), in light of the survey and reflection data we believe that candidates were able to develop their communication and parent conferencing skill sets through the Clinical Simulations project.

The final outcome focused on the ease of recording the simulation conferences for candidate playback and sharing with a seminar group. This outcome cannot be assessed until spring 2014 in order for candidates to have had the opportunity to complete both experiences with different technology. At that time they will be able to compare their experience recording their teaching for self-assessment and transfer to their professors during their practicum course with the experience of using iPad mini’s for the clinical experience. Judging by the difficulties that candidates regularly have with the university cameras we expect that the mini’s will prove easier for candidate use.

Clinical simulations are one step toward integrating clinical preparation throughout teacher education in a dynamic way. As Cameron University works with its P-12 partners to strengthen its teacher preparation coursework, plans are being made to integrate clinical simulations throughout the program in addition to remaining a part of the student teaching seminar.

# Developing a Web-Based Training Module for Clinical Evaluation of Student Teachers

Submitted by: Debbie Claxton  
East Central University

## Summary of grant activities

*Developing a Web-Based Training Module for Clinical Evaluation of Student Teachers* was designed to improve communication with the cooperating teachers and school districts that host field students. Particular emphasis was placed on mentoring and evaluating cooperating teachers. The project proposed to build new web pages with information regarding the requirements and expectations of all stakeholders involved in field experience and student teaching and to invite cooperating teachers and university supervisors to establish baseline criteria for the student teacher evaluation instrument.

Web pages were built to provide more direct information to cooperating teachers that replaced a Professional Education Handbook where field/student teachers were expected to share information with the host district. While the expectation is still that the student and mentor teacher are reviewing the expectations and requirements of the field experience together, cooperating teachers, administrators, and university supervisors have continual access to the information at <http://wwweduc.ecok.edu/ProfessionalEd/html/index.htm>.

Additional activities were planned to create student teacher profiles for the *Accomplished, Proficient, Competent* and *Emerging* performance levels of the student teacher evaluation. The Clinical Teaching Evaluation Forum brought 14 cooperating teachers and 4 university supervisors together to discuss the characteristics of a successful student teacher and to establish interrater reliability of the evaluation instrument. While the forum was a success, it became evident that much more time and would be necessary to complete the basic profiles before developing an interactive training module for new evaluators.

## Implications of grant activities

The grant focused on communication with stakeholders about the expectations of the professional education field experiences and the evaluation of student teachers. While ECU has a solid relationship with the stakeholders and district partners, as changes occur within the program the means of updating that information immediately through the website has been a benefit. The education program has re-implemented the face-to-face cooperating teacher forum which is promoting conversation about the changes in education overall and specific changes happening in the program and in the host sites. The Clinical Evaluation Forum showed the willingness of the stakeholders to attend and support the program, but a one-time meeting during the semester will not be enough to achieve the level of collaboration that is intended. The education program will continue to look at ways to collaborate and communicate in an ongoing format with other stakeholders.

A priority from the project is the need for training for all supervisors and establishing interrater reliability on the student teacher evaluation instrument. One of the outcomes of this grant will be to pursue other means of hosting cooperating teachers, university supervisors and administrators to develop baseline data and inform the development of the online training module. While grant funds provided the resources the technology resources, more funds and time will be necessary to create the product that was envisioned as the goal of this grant.

## Summary of grant activities

The *ECU edTPA Implementation for Student Teachers* project was focused toward supporting the transition from a traditional *Teacher Work Sample* to the Teacher Performance Assessment, edTPA. While ECU participated in an edTPA field test during Spring 2012, only one content area was selected at that time and participants were required to complete both the traditional TWS and the edTPA. In Spring 2013, the university chose to transition completely to the edTPA structure and guidelines for all teacher certification programs. Sixty-six student teachers representing Early Childhood, Elementary, Art, English, Family-Consumer Science, History, Math and Physical Education completed the requirements. Documents were still scored internally by ECU Professional Education faculty; no items were submitted for 'official scoring' by Pearson.

Funds were used primarily to support the video documentation required in the edTPA. This element was not a part of the previous *Teacher Work Sample* and caused the most anxiety for students. While most students were familiar with video through mobile devices, converting the video to an acceptable format and transferring the video to the required online portfolio system was the focus of an additional 'work day'. Student attendance was voluntary, but fifty students (76%) showed up for assistance.

## Implications of grant activities

The grant focused on the video component of the edTPA, and the computers purchased with grant funds are available in the education department computer lab. The Education Technology course began including a video component several semesters ago, but the focus of the assignment is more directly related to edTPA activities. More guidelines for acceptable hardware to be used for videotaping and a more consist video conversion app or software will be researched and implemented during the Spring 2014 semester.

It is clear that the cooperating teachers and school districts that host the student teachers need more information about the edTPA process and, specifically, the videotaping requirement. One district required a letter from the chair of the department explaining the need for the video. In other instances, cooperating teachers were willing assistants for the video, but hardware was outdated or the focus of the video did not serve the purpose of the project.

Program directors from all of the teacher certification areas have become more involved in the edTPA process and have been invited to attend Local Evaluation training to help internally score the products for the Fall 2014 semester. The professional education courses required prior to student teaching have not been altered, but more emphasis is being placed on the connection between coursework, edTPA requirements and 'real' classroom teaching.

The edTPA is a capstone activity that requires the demonstration of skills and reflection on knowledge and dispositions gained by the candidate throughout the program. It also provides rich data that can be used by the professional education unit and individual *specialized professional associations* (SPAs) to focus on continuous improvement and communicate with supporting school districts about the quality of ECU Teacher Education Candidates.

## Research Overview

The 2013 draft of the Council for the Accreditation of Educator Preparation (CAEP) clearly indicates the organization goals are to increase levels of performance through evidence based practices ( CAEP, 2013). Nationally we know through state and national legislation that education reform in the area of teacher preparation is a high priority. Budget reduction, state funding for higher education and K-12 standard mandates are guiding forces in reconfiguring teacher education programs.

Linda Darling Hammond (2012) suggests:

Teacher evaluation is currently the primary tool being promoted to improve teaching. With its focus on teacher effectiveness, the federal Race to the Top initiative began the process of requiring participating states to develop more extensive evaluation systems, including more differentiation among teacher ratings and use of student learning evidence. (p. 9)

The tie to teacher evaluation and student performance is underway and is currently used to inform academic and curricular decisions across the nation (Wilson & Hallum, 2006, Newton, 2010, Darling Hammond, Newton & Wei, 2012).

At a national level the decision to link teacher practice and performance to the student achievement assessment is utilized in districts and national board certification standards. With this in mind, it is imperative that teacher education programs prepare clinical education pre-service teachers accordingly. Therefore, to continue to positively transform educational practice analysis of pre-service teachers and the use of formative and comprehensive assessment through reflective practice is a necessity.

## Purpose of the Study

The purpose of this pilot study is:

To identify a selected group (10-15, >5% of the general population) of full intern pre-service teacher candidates in the NSU College of Education who will be introduced to a video assessment at four different intervals during the semester.

To identify participants reviews of the edTPA process and gain an understanding of the video review from participants.

For this study the researchers:

- Introduced edTPA through orientation and training for selected participants.
- Identified information to further assist in program development and future implementation of video reflection/assessment instruments.

## Research Objectives

1. To meet the needs of this national charge and begin the transformation process the project objectives of this grant are two-fold:
2. To identify pre-service teacher candidates during the final internship and record lessons using video assessment analysis.
3. To provide feedback using reflective practice, anecdotal records and student performance through pre-post assessment.

## Summary

- Feedback data collected from clinical faculty in the previous academic year indicated teacher candidates show strength in professionalism and ethical traits and areas for improvement in technology integration. This pilot allowed the candidates to review their own video teaching performance and compare indicators from the initial NSU Comprehensive Lesson Assessment and the edTPA results.
- This pilot helped our unit to understand the importance of video assessment and feedback and look into developing this measure in future teacher candidate evaluations.

## References

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# Alternative Certification Preparation Conference

**Submitted by:** Dr. Beverly Warden, Dr. Bo Hannaford  
**Northwestern Oklahoma State University**

The Division of Education at Northwestern Oklahoma State University was provided a grant that allowed the implementation of a local conference directed towards improving the skills of alternative certified teachers in the Northwest Oklahoma region.

The goal of the conference was to provide alternative certified educators, and all other educators that attended, information they may not have been provided during their own certification process, in hopes of decreasing the educational gap between traditionally and alternatively certified educators by providing information on essential classroom strategies that were not provided during their initial training.

The conference focused on four main areas of improvement: Classroom Management, Knowledge of Curriculum and Standards, Effective Discipline Skills, and Clear Objectives for Lessons. Speakers were chosen based on their experience and education concerning each topic. The effects of the conference were measured by the use of a questionnaire that evaluated the participants perception of where he/she stood in regards to the “Top 10 Qualities of a Great Teacher” as identified by Teaching.org (2102). The questionnaire was given to each participant at the beginning of the conference, at the end of the conference, and again three months into the following semester.

Each of the three surveys for each participant were evaluated and compared. The overall results showed that the participants arrived at the conference with high confidence in their teaching qualities, but scored themselves considerably lower at the end of the conference. However, the final post scores revealed that once the participants applied the knowledge gained from the conference, they re-considered themselves high in these teaching qualities.

Overall, the Division of Education was pleased with the results from the conference. The speakers and overall conference received strong reviews. Because the end survey showed a strong increase in results, it is concluded that conference was a success. In the future, the Division of Education hopes to reach more educators who are alternatively certified so that the quality of education can continue to be improved.

# Examining the Performance of Pre-Service Elementary School Teachers

Submitted by: Dr. Juliana Utley, Dr. Toni Ivey, Dr. Sue Parsons  
Oklahoma State University

The **purpose** of this grant was to explore the value of using the edTPA as a tool in teacher education program to inform programmatic and instructional decisions. The activities of this grant were framed by the following *goals*:

**Goal 1.** To examine the efficacy of using the edTPA as a measure of the effectiveness of elementary education student teacher performance.

In order to examine the efficacy of the edTPA as a measure of effectiveness, bivariate correlations were ran between student's scores on the edTPA , OPTE, and student cumulative GPA.. Results suggest that there is a significant positive correlation between each of the 3 tasks and the overall score on the edTPA and student's GPA. However, there was not a significant correlation between the overall OPTE and the edTPA overall scores.

N = 73	GPA – Cumulative <i>r (p)</i>	OPTE – Overall <i>r (p)</i>
edTPA - Overall	.390 (.001)	.061 (.607)
edTPA – Task 1	.343 (.003)	.119 (.317)
edTPA – Task 2	.286 (.014)	.073 (.542)
edTPA – Task 3	.399 (.000)	-.034 (.775)

**Goal 2.** To examine the efficacy of an extended field experience on elementary education student teacher performance as measured by the edTPA.

During the final year of course work some students (n=29) chose to participate in an extended field experience (ExCEL) that keeps them in the same classroom for two semesters and approximately 3 times the amount of time in the field during the semester prior to student teaching than the traditional campus based group of students (n= 44). While on average the ExCEL group had a higher mean, independent samples t-tests revealed no significant difference between the two groups of students on the edTPA.

Group	N	Mean	Std. Deviation	Std. Error Mean
edTPA1 Campus-Based	44	9.59	2.375	.358
ExCEL	29	10.34	2.609	.484
edTPA2 Campus-Based	44	9.50	2.464	.371
ExCEL	29	10.07	2.563	.476
edTPA3 Campus-Based	44	9.20	2.474	.373
ExCEL	29	10.17	2.172	.403
edTPATot Campus-Based	44	28.30	6.378	.962
ExCEL	29	30.59	6.462	1.200

Qualitatively, we noticed that students in the extended field experience had a greater depth of understanding of the context for learning including how to provide the needed supports, accommodations or modifications for students in their assigned classrooms. Additional, qualitative analysis is ongoing to look more in-depth at each of the 3 tasks.

**Goal 3.** To explore whether scores on the edTPA can provide evidence to assist an elementary education program to make programmatic and instructional decisions.

As a result of this study, the elementary education faculty has increased the credit hours for the curriculum class from 1 to 3 credits which will enhance student performance on the student teaching capstone project, such as edTPA. This increase in credit hours will provide more time for instructors to help preservice teachers focus on the planning, instruction, and assessment of quality curriculum units that help them assimilate concepts from all university coursework. Further, we have enhanced preservice teachers' reflective practice by adding more focused opportunities for students to observe and critique actual teaching practice, whether it is videos of themselves teaching or videos of other teachers.

**General Comments:**

- We are still in the process of qualitatively analyzing the content of student's edTPA.
- We are continuing to pilot the edTPA; we are scoring internally using a modified 3 point rubric (i.e. emerging, basic, advanced) as suggested by Pearson.
- As we qualitatively observed the scores for the extended field experience students on the edTPA, we noted students that had typically put in a minimal effort on course assignments and had not participated actively in their classroom placement during the field experience prior to student teaching did not perform as well on the edTPA as the students who had been actively involved.
- Future study might include examining the potential impact the classroom placement has on student performance on the edTPA.

# Working Together to Grow Teachers and Schools

**Submitted by:** Dr. Sue Parsons, Dr. Juliana Utley, Dr. Tony Ivey  
Oklahoma State University

Funding for the Working Together to Grow Teachers and Schools Grant was used to strengthen mentoring of teacher candidates in the OSU ExCEL program. Specifically, the grant served the following program goals: 1) actively teach and support quality mentoring; 2) foster a co-teaching model for ExCEL and traditional student teaching experiences; 3) continually improve active collaboration with public school faculty; 4) continue research to better understand what works and what needs to be adjusted; and 5) explore ways in which partner schools might be more self-sustaining.

We began with a two-day summer workshop in August during which ten experienced program mentor teachers were trained as site mentors to provide responsive support for their mentoring colleagues. Workshop content included theory and research supporting effective practice, understanding program goals and practices, development of a mentor handbook and site plans for implementation of the initiative, and instruction in co-teaching strategies. The mentors returned to their schools to conduct orientation and training of program mentors and, throughout the course of the semester, served as “first responders” and coaches as questions and concerns arose during mentoring. They also served as liaisons between OSU program faculty and mentors at the schools.

Nine of ten site mentors agreed to participate in research to evaluate the new initiative. Data consist of pre and post surveys relative to expectations and experiences, participant logs of engagement, and site-specific focus groups to be conducted after the semester ends. Another training session will be provided in January, this one focusing more fully on coteaching to support the transition from the three-day fall experience to full student teaching. Site mentors will assist in this training that will include all program mentors and site administrators. Our initial experiences have been highly positive and we look forward to spring developments and to exploring insights from research on the new initiative.

# Changing the Landscape of Learning: 1-to-1 iPad Integration in the Reading and Math Clinic

Submitted by: Dr. Sheri Vasinda, Dr. Adrienne Redmond-Sanogo, Dr. Faryl Kander  
Oklahoma State University

Through this grant, we have been able to continue to examine the following questions:

1. In what ways can tablet computers (iPads) be used in the Randall and Carol White Reading and Math Center (RMC) to support technology integration in tutorial settings and enhance literacy and math teaching and learning?
  - a. with preservice teachers
  - b. with inservice teachers
  - c. with the community K-8 students served by the RMC and their caregivers
  - d. with the university faculty and staff supporting the university students
2. How will the TPACK model support critical decision-making in regard to technology integration of tablet computer apps in lessons developed by university and faculty?

The following themes have begun to emerge from preliminary analysis of the data:

1. University students are using the pedagogical framework (TPACK) to think about their technology integrations and more deeply about pedagogy. Tutors are thoughtfully discussing and evaluating their practices as more teacher-centered or student-centered.
2. University students are considering and articulating particular technology affordances, or benefits, and the way content knowledge is supported through these affordances.
3. Although the majority of students are part of the “net generation”, or digital natives, most still need support from university faculty as to how particular applications support either literacy or math. Faculty continues to scaffold students to consider some of the apps when tutors look to traditional practices in both reading, writing, and mathematics.
4. If content knowledge is developing, or weak, then technology integration is also weak.
5. The students who had access to the iPads in the previous semester in their Reading and Assessment course are able to use the iPads more creatively in their Mathematics methods course the following semester.

The reach of this work is contributing to a greater body of knowledge about educational technology integration in preservice teacher education methods courses. The preliminary findings have been presented at state, national and international conferences. We are now able to shape and refine future research. Some of our new questions are:

1. How does having experience with the iPads and the TPACK model affect student teaching practices?
2. What impact did the technology have on tutor / tutee relationships?
3. How does the use of virtual manipulative fraction tiles vs using traditional tiles influence learning?
4. How does creating a digital portfolio of the 10 week tutoring cycle affect process and content learning and instruction?

The purpose of this project is to bring together experienced physical educators from P-12 schools in Oklahoma to work with University of Central Oklahoma (UCO) Physical Education (P.E.) pre-service teachers. It is a transformative professional development opportunity focused on critically engaging in a convergence of conceptual understanding and authentic experience to materialize physical literacy in P.E. through teaching academic vocabulary.

On June 28, 2013, nineteen participants attended a one-day workshop focused on the development of physical literacy through teaching academic vocabulary in physical education. The participants were an intentional blend of experienced teachers from the Oklahoma City metropolitan area (Teachers = 9) and University of Central Oklahoma physical education majors/pre-service teachers (UCO students = 10). Upon completion of the workshop participants received a \$100.00 stipend and two reference books to enhance their teaching of academic vocabulary. Each participant was provided a pre and post survey to measure efficacy of the workshop. Findings from the survey as noted:

## Pre Survey:

- 10.5 % (2) Participants indicated they knew a deliberate methodology for teaching academic vocabulary.
- 30% (3 of 9) of teachers asked knew of common core and how to integrate it for physical education.

## Post Survey:

- 100% of the participants stated they will use the methodology presented from the workshop for implementation of academic vocabulary in physical education (integration of common core).
- Upon leaving the workshop participants ranked their level of understanding at an acceptable rating average of 4 out of 5 for common core understanding. (Oklahoma has yet to articulate the parameters of Common Core for P.E. For the purposes of this workshop the project coordinator used a “technical subject” approach for developing literacy within the content area.)

## Other implications:

- The main ideas of the workshop were presented at the Oklahoma Association of Health, Physical Education, Recreation and Dance during the session “*Common Core and Teaching Academic Vocabulary in Physical Education*”. Approximately 50 attendees in the session.
- UCO pre-service teachers have been placed and are in the process of being placed for upcoming student teaching experiences with their partner teachers from the workshop.
- Interviews with teachers to further analyze the implementation of academic vocabulary in physical education are ongoing.
- Lesson plans created during the workshop are in final editing stages to be shared on the OAHPERD listserv (over 2,000 members) in January 2014.

Overall, the workshop was a success. As noted by comments from participants in the workshop and attendance at the OAHPERD conference session there is a need for further workshops and educational opportunities such as this for teachers and pre-service teachers in Oklahoma.

University of Central Oklahoma (UCO) is currently in the midst of “Re-Visioning” its Teacher Education program in an effort to advance candidate preparation through more deeply enriched, targeted clinical experiences. One of the elements for enhancing clinical experiences, especially the student teaching internship, is for student and mentor co-teachers to utilize seven identified strategies from the Saint Cloud Minnesota (SCMN) Co-Teaching model. In this model, expert and novice teachers collaborate during lesson design, delivery and assessment so that both professionals are engaged in classroom management and instruction at all times.

## Project Objectives:

Objective 1. Provide co-teacher training to a cadre of 40 PK-12 teachers who will implement these approaches with University teacher candidates. **(completed)**

Objective 2. Develop and collect data through surveys and interviews regarding the targeted approaches embodying our co-teaching model. **(completed)**

Objective 3. Analyze and publish/present a report to stakeholders, including the OCTP (by Nov. 30, 2013), regarding findings from the data. **(completed)**

Objective 4. Utilize results identified in the data to advance and expand our co-teaching model for full-scale implementation within the next two years. **(completed)**

## 1. How were the project objectives addressed?

Grant funds from OCTP were utilized to train P12 mentor teachers ( $n = 43$ ) who were assigned or who will be assigned to work with student teachers from UCO during fall 2013 or spring 2014 in the SCMN model. UCO Teacher Education provided additional funds to extend the work of this grant to train Urban Teacher Preparation Academy (UTPA) mentor teachers ( $n = 13$ ); fall student teachers ( $n = 85$ ); Teacher Education faculty and adjunct faculty, including those who serve as university supervisors, ( $n = 33$ ); and other educational partners ( $n =$  approximately 80). Success in using the SCMN strategies relies on users sharing a common language and understanding of co-teaching practices; thus, the training has included teacher candidates and various professionals who have a role in preparing future teachers at the university.

## Method of Participant Selection and Evaluation

### 2. How were individuals selected to participate and what evaluation process was used to collect data?

Information about the SCMN Co-Teaching model was sent to principals in our current P12 partnership schools. These principals were encouraged to send the flyer and additional information to mentor teachers they felt would best work with student teachers. Individual teachers signed up by contacting the Teacher Education Services office at UCO and then attended the training on July 25 or July 30, 2013. Many individuals already knew they would be assigned a student teacher in fall 2013, and some individuals were hoping to be assigned a

student teacher in spring 2014. The principal investigator and his colleague Ms. Karyn Hutchens, Coordinator for School Partnerships and Teacher Residency at UCO, developed a survey regarding the training, and data were collected at the end of each session. Follow up surveys were sent to participants in October 2013 [**Objective 2**]. Data were analyzed to determine the effectiveness of the training [**Objective 3**].

## Future Goals

### 3. Based on follow-up analysis, what concrete information can be provided on the future goals/intent?

Data demonstrate that training session survey respondents ( $n = 37$ ) reported greater understanding of SCMN co-teaching strategies and perceived benefits related to future use of these strategies due to the training. To date, follow up survey participation has been extremely low ( $n = 3$ ); however, all respondents identified that they had used a range of co-teaching strategies with their student teachers during fall 2013 and that their experiences were positive. Based on this feedback and the longitudinal research provided by St. Cloud supporting the use of the model, UCO has adopted these approaches.

Our immediate goal regarding the SCMN co-teaching model is to train all P12 mentors, a cadre of 250+ teachers, who will host and collaborate with UCO student teachers by fall 2015 (sooner, if possible) [**Objective 4**]. We will require training and the use of co-teaching strategies to ensure UCO student teachers are fully engaged in classroom management and instruction throughout their internships. Sharing a common understanding of expected internship strategies will assist mentors/supervisors in evaluating student teaching performance, as well as the quality of the internship placement.

We are pursuing several routes to train this size of a cadre. First, an online module providing the SCMN co-teaching model is being developed (to be completed by December 2013) by UCO's Center for eLearning and Continuing Education. P12 co-teachers will be able to access this two-hour training via computer on their own time. Second, we are working with several districts to present at their district-wide professional development days. Third, we also hope to pursue funding to replicate this grant since stipends were critical in getting participants to complete the training on campus during summer vacation time. The multiple routes of training and our requirement of the training to be assigned a student teacher (full implementation fall 2015) should assist us in fulfilling this goal.

Finally, faculty and staff are working to integrate the co-teaching strategies by "designing down/back" these approaches into program coursework. Our plan is to integrate the seven co-teaching strategies into program assignments so that the language and the practice of co-teaching are understood and demonstrated prior to the internship. We are also in the process of revising clinical experience expectations and evaluations that occur prior to student teaching to assess teacher candidates' demonstration of these approaches and how we may facilitate candidate engagement in classroom management and instruction.

# How will STEM Focuses Field Experiences Affect Teacher Candidate's Attitudes Toward Mathematics and Science

Submitted by: Dr. Darlinda Cassel, Dr. Dan Vincent  
University of Central Oklahoma

This project provided UCO candidates field experiences at local middle schools. The control group (not concurrent enrollment in the science and math methods courses) visited Central Middle School eight times during the semester. These students taught one math lesson and may or may not have interacted with the students. The math professor was not involved in the control group's field experiences and the science professor was involved only on a few occasions with the science control group.

The experimental group (concurrent enrollment in the math and science methods courses) had STEM focused field experiences at Oklahoma Christian Academy (OCA) in the Spring of 2013 and at Sequoyah Middle School during the Fall of 2013. OCA provided 6 times for UCO candidates and professors to work with 6<sup>th</sup> graders and Fall 2013, Sequoyah Middle School provided 4 times for UCO candidates and professors to work with 6<sup>th</sup> and 8<sup>th</sup> graders. These UCO candidates facilitated windmill activities (spring semester) and lever/pulley activities (fall semester). The candidates worked with small groups of students for 2 hours each session. During these activities the candidates used Tinker toys, yard sticks, fulcrums, i-Pads, Venier hand-held devices, and Sparkvue app for the i-Pad. All candidates completed pre and post efficacy surveys. Two one-way repeated measures ANOVA were conducted with the between factor being the class (STEM-focused vs. Traditional) with the dependent variable being test scores (pre vs. post), taken from the Fennema-Sherman Efficacy Scale. One analysis was conducted for the math methods course, and the other was conducted for the science methods course.

Math Methods Course: The results for the ANOVA for the math methods course indicated no significant interaction between class and test score, Wilk's lambda = 0.982,  $F(1,25)=0.465$ ,  $p=0.502$ . However there was a significant main effect for test score, Wilk's lambda=0.335,  $F(1,25)= 49.65$ ,  $p<.001$ .

Science Methods Course: The results for the ANOVA for the science methods course indicated no significant interaction between class and test score, Wilk's lambda =0.99,  $F(1,23)=0.222$ ,  $p=0.642$ . However there was a significant main effect for test score, Wilk's lambda =0.427,  $F(1,23)=30.86$ ,  $p<.001$ .

Based on these results, future research will include item analysis of the Fennema-Sherman results to determine if significant differences exist within questions.

The funds allocated for this project were spent on supplies, a research assistant and travel. At the time the professors wrote the proposal, the middle schools had not been secured but the travel money was based on two OKC schools who were interested in partnering with UCO.

Based on the data, informal feedback from teacher-candidates and the types of lessons created by candidates in the experimental class (several designed and taught STEM lessons) we see benefits for our UCO candidates. While there are no formal measures yet to document some of these differences, these observations lead us to believe this type of course set-up has great potential to better prepare teachers in our program.

# Studying the Effectiveness of the Urban Teacher Preparation Academy

Submitted by: Dr. Mike Nelson  
University of Central Oklahoma

The purpose of this project was to investigate the effectiveness of the University of Central Oklahoma’s Urban Teacher Preparation Academy (UTPA) in preparing teacher candidates for working in urban schools. The OCTP grant provided funds to support a team of trained research assistants to conduct classroom observations during the fall of 2013. Approximately 50 teachers from all grade-levels employed by the Oklahoma City Public Schools were observed. A preliminary analysis of the observational data, which is included in this report (see Table 1), was presented this fall at the Annual Conference of the Rocky Mountain Educational Research Association and the Conference of the Coalition of Urban and Metropolitan Universities. In addition, the data collected during this grant has been included in manuscript submitted to the *Metropolitan Universities Journal* and will be included as part of a larger report to stakeholders. Overall, UTPA teachers actively engage students during instruction and create a positive climate for learning.

**Table 1. Preliminary Findings for UTPA Student Teachers and First Year Teachers**

	Relative Strengths Student Teachers	Relative Weaknesses Student Teachers	Differences b/w Student Teachers and 1st year Teachers
Knowing the students	None identified	<ul style="list-style-type: none"> <li>• Not addressing students by name</li> <li>• Demonstrate limited contextual knowledge about the students</li> </ul>	<ul style="list-style-type: none"> <li>• More consistent use of student names</li> <li>• Improved contextual knowledge about the students</li> </ul>
Instructional Process	None identified	<ul style="list-style-type: none"> <li>• Objectives are on the board, but the teachers do not refer to or tell students the objectives for the lesson</li> <li>• Do not wrap-up the lesson with a closure activity</li> <li>• Limited use of technology to increase student engagement, understanding, or to make real world connections</li> </ul>	<ul style="list-style-type: none"> <li>• Were more consistent with telling students the objectives for the lesson</li> <li>• Were more consistent in cueing prior knowledge</li> <li>• Better job of checking for understanding and providing feedback</li> </ul>
Active Instruction	<ul style="list-style-type: none"> <li>• Get students engaged at the start of class</li> <li>• Encouraged active engagement by seeking student input during whole-group instruction and asking students to collaborate during small-group instruction</li> <li>• Activities were appropriate for the objectives, lesson, and the needs of the students</li> </ul>	<ul style="list-style-type: none"> <li>• Not closely monitoring the level at which students are on-task</li> </ul>	<ul style="list-style-type: none"> <li>• Improved monitoring the level at which students are on-task</li> </ul>

Positive Climate Environment	<ul style="list-style-type: none"> <li>• Listens carefully to student questions</li> <li>• Does not depreciate students</li> <li>• Treats students equitably</li> <li>• No major disruptions or misbehavior</li> </ul>	None Identified	<ul style="list-style-type: none"> <li>• Improved proactive monitoring to keep students on task</li> <li>• Improved use of praise</li> </ul>
Organization	<ul style="list-style-type: none"> <li>• Teachers were organized, knew what they wanted to do, supplies and materials were ready to use</li> <li>• Classrooms were generally arranged to support on-task behavior</li> </ul>	None Identified	None Identified

Nelson, Belflower, Bollig, Cunningham, Quadri, Robertson, & Sartain (2013)

## Purpose of the Study

Teacher Candidates tend to lack awareness and understanding of, and empathy for, students living in difficult situations, such as those marked by poverty, various forms of abuse, and immigration. This study explored the influence of literature case study on pre-service teacher's awareness of, understanding of, and empathy for students living in challenging circumstances. The goal of a literature case study is to help students clarify connections between theory and practice through the discussion of events and themes in a novel.

## Method

*Participants.* 62 students enrolled in a junior-level developmental psychology course for education majors participated in the study. The majority of participants was female, and between 18 and 22 years of age.

*Literature Case Study Assignment.* Students chose their novel from a menu of options. Case study groups of 4-5 students were formed on the basis of book selection. At four points in the course, students completed individual case analyses following an analysis guide. Following submission of individual responses, groups met during class time to synthesize the individual responses into a final group product. Ten participants were interviewed about their literature case study experience.

*Data Sources.* (a) written analyses, (b) evaluations of assignment, (c) interviews with ten participants.

## Findings

*Little Chicago* by Adam Rapp (2002)

### Most students:

- are far removed from the type of life presented in the novel
- make assumptions based on their own life experiences
- have narrow perception / flat view / don't see possibilities
- fail to recognize sources of support for protagonist
- fail to recognize multiple perspectives in the novel
- project own ideas and definitions onto the context of the novel
- label/diagnose protagonist based on the assumptions they have made
- don't understand what the child is going through
- are judgmental/look down on the child and situation
- want to help the protagonist
- have a desire to nurture

### Some students:

- recognize the limits of their knowledge and understanding

### Assignment was effective at:

- identifying how/what students are thinking about the situation

### Assignment was ineffective at:

- overcoming and breaking down stereotypes
- helping students see multiple perspectives

### Suggestion for revision:

- Students need to be guided by someone that understand the novel and its implications

## **Implications**

Preliminary findings indicate that teacher candidates are aware of their future students' differences in regards to socio-economic status; however, are often unaware of the impact that poverty, immigration, abuse, and neglect can have and how deeply these issues can influence a student's education, outcome, and future. Literature case study could have an impact on pre-service teachers' awareness and understanding of, and empathy for, students living in difficult situations. It is important for students to be guided through experiences presented in the novel so that they can sort through their own biases and become more aware of multiple perspectives.

The purpose of this project was to bring together experienced mathematics educators from Oklahoma middle and high schools to work with University of Oklahoma Mathematics Education pre-service teachers for a one-day collaborative experience. This project aimed to fulfill a dual purpose:

- First, provide a unique collaborative experience by bringing together both experienced teachers and OU pre-service teachers in the same CCSSM training.
- Second, an opportunity to examine, via empirical research methods, the impact of this type of collaborative training experience on the participants' understanding of the CCSSM.

This project was developed around five objectives. Each objective and the progress to date toward each objective is included below:

**Objective 1:** Recruit experienced middle school and high school mathematics teachers and OU Mathematics Education pre-service teachers to participate in one-day CCSSM professional development workshop.

Thirty-five teachers and pre-service teachers were specifically recruited to attend the workshop on Saturday, September 21, 2013 on the OU campus. Twenty-three mathematics educators attended the workshop, twelve in-service teachers and eleven pre-service teachers attended.

**Objective 2:** Increase teachers and pre-service teachers understanding of the CCSSM Mathematical Practices and the CCSSM.

The first section of the workshop focused on the CCSSM Mathematical Practices and learner outcomes. The participants' exposure to and understanding of the CCSSM MPs were assessed both pre- and post-workshop. While final analysis of these data are currently underway, preliminary self-report information the workshop participants indicates an increased understanding of CCSSM and the Eight Mathematical Practices.

**Objective 3:** Develop and produce a variety of cognitively high-demand tasks aligned with the CCSSM to be disseminated to teachers across Oklahoma via electronic media.

Each experienced teacher and a pre-service teacher worked together to develop two cognitively high-demand tasks that aligned to the CCSSM relevant to the experienced teacher's teaching assignment. Further, each task was aligned to specific CCSSM MP's. These tasks were developed and collected the day of the workshop and are currently being formatted for publication.

**Objective 4:** Place OU Mathematics Education pre-service teachers in the classrooms of teachers who participated in this project beginning Fall 2013 for Level III field experience observation hours and student teaching.

Four OU Mathematics Education pre-service teachers completed 30 hours of field experience with teachers they worked with during the workshop. Two teachers who attended the workshop served as mentor teachers for OU student teaching interns this fall.

**Objective 5:** Determine the impact of this professional development on the participants' understanding of the CCSSM Mathematical Practices and the CCSSM learner outcomes.

The data produced from the pre- and post-surveys, as well as the tasks developed, are being analyzed to determine the participants' understandings of the CCSSM MPs and learner outcomes. To date, this project and its findings have been accepted to be presented at the Annual Conference of the Research Council on Mathematics Learning (February, 2014 – San Antonio, TX). We also anticipate submitting a proposal to present a research report to the Psychology of Mathematics Education 2014 Annual Conference to further distribute our findings.

In summary, this project was successful and all the objectives have either been met or will be met by February 2014 (in time for the presentation at a national conference). The budget was spent in the manner outlined in the proposal and sufficiently supported the success of this project.

## Summary

USAO submitted proposals for and received two grants to help defray initial expenses related to launching a new approach to a teacher candidate's Professional Trimester. Exploration began in the summer of 2011 and culminated with the decision to adapt the co-teaching model of St. Cloud University (fall 2012). Implementation began with teacher candidates in the Fall of 2013. Our co-teaching initiative has evolved into: embedding co-teaching strategies into Clinical Experience Level 1; Clinical Experience Level II; EDUC 3003 Language Arts in the Elementary School; EDUC 4442 Classroom Management and Evaluation Theory; and EDUC 4542 Applied Professional Studies. It is expected that more content classes will incorporate these strategies.

- Promotional bookmarks were developed.
- A USAO lesson plan template was modified to include co-teaching strategies and the role each teacher will take in the lesson.
- A database of initially trained teachers, administrators, teacher candidates, and university faculty has been established and maintained.
- Initial training of 222 individuals has occurred. Training began in the spring of 2013 and continued into November 2013. The intensive three-hour initial trainings involve co-teaching strategies, history of the co-teaching model, collaboration techniques, planning, implementation processes, and assessment tools
- 46 individuals have attended partnering meetings (generally 3 hour sessions) which include both mentor teacher and teacher candidate in collaborative experiences.
- A training manual and a partnering manual were developed to distribute at the trainings/meetings.
- A co-teacher information form; an observation instrument; a professionalism evaluation; a placement request; and a personal/professional data sheet for teacher candidates were developed. The observation instrument and professionalism evaluation are currently being field tested.
- A survey item of co-teachers, principals, and faculty has resulted in "effective" and "superior" use of the co-teaching strategies.
- Informal discussions during Teacher Education Committee meetings identified strengths: strategy usage; enhanced collaboration skills, TC confidence, mentor does not have to leave, mentor teacher gets to decide when TC is ready to "go it alone," classroom management stronger and some considerations: making sure TC knows how to use strategies, encourage some "solo time."
- The impact on student learning will be assessed through the evaluation of Student Impact Projects (SIP) completed by teacher candidates, as well as through instruments distributed to mentor teachers, university supervisors, and principals. The co-teaching strategies will be evident on the lesson plans for the unit. The impact will be found in the qualitative reflection of the individual report and in the quantitative graph of the unit project. The first co-teachers are currently enrolled. The SIP data from their reports will be collected in December 2013.