TOWARD A COHERENT CURRICULUM FOR SECONDARY CLINICAL TEACHER PREPARATION

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Abstract: In response to a national call in the United States for clinical-based models for teacher preparation, this university partnered faculty from teacher education, history, and English with teacher mentors from two partner high schools to design a clinically based teacher preparation program for secondary social studies and English teacher candidates. The relocation of teacher education from academia to local high-school classrooms necessitated a challenging yet committed posture grounded in constructivism and empowered through inquiry. This article 1) shares formative findings from three semesters of implementation, 2) summarizes what teacher educators learned about designing curriculum components for a clinical model, including instructional rounds, an inquiry project, and reflective journals, and 3) describes some challenges of implementing a clinical model for secondary teacher candidates. This study of one university's process of creating a curriculum for clinical teacher preparation demonstrates the importance of a collaborative, inquiry-based approach both for curriculum designers and teacher candidates. The most important lesson learned for clinical curriculum design is that courses and lessons designed for a university classroom on a university campus are ill-fitted for the immersion experience afforded by a clinical teacher preparation program. Designing a clinical curriculum required re-imagining how theory and praxis can be seamlessly blended in a coherent, two-semester program delivered on-site in a partnering school. The authors demonstrate how new elements, such as instructional rounds, and re-structured elements, including research projects and reflective journals, are most successful when configured as a cohesive, progressive process of inquiry into the practice of teaching.

INTRODUCTION

In 2010, the National Council for Accreditation of Teacher Education (NCATE) in the United States published a policy brief on clinical education, drawing attention to the need for clinical teacher preparation programs in all areas. In fall 2013, in response to NCATE's call for reform, two colleges at a mid-sized university in the southeastern United States collaborated to create a clinical model for secondary social studies and English teacher education. The interdepartmental and cross-institutional model that resulted applies the principles of clinical instruction called for by NCATE, incorporating "dramatically different " course configurations and substantially altered relationships with partner schools (King, 2013, p. 1). The text that follows is written from the perspective of three professors who developed strategies for a clinical model and taught teacher candidates in a clinical setting. Curriculum planning for the clinical teacher preparation model required thoughtful engagement with two basic questions: (1) What theories, concepts, and frameworks are powerful for explaining and guiding teacher candidate learning in school contexts? (2) What practices of school-based teacher educators can most effectively impact the learning processes of teachers-in-training? In this article, the authors share, in response to the first question, the conceptual framework of the clinical model that was developed; in response to the second question, the central teaching practices that were developed for the clinical model; and, finally, the authors' best take-away lessons from the emerging model, which has undergone a stringent, continuous review and revision process for each semester of implementation.

A major challenge of creating a clinical model was the problem of reconfiguring delivery of an existing traditional stand-alone methods courses for secondary social studies and English into one seamless clinical experience. Curriculum developers were faced with combining five traditional methods courses and a literacy

course into a year-long clinical curriculum to be delivered on site at two participating high schools. The cross-institutional model that was developed in cooperation with partner schools required students enrolled in the program to spend one semester at each clinical site: one urban and one small-town, rural high school. University faculty from teacher education, history, and English co-taught the reconfigured courses. The history professor and the English professor both had high-school teaching experience, and both routinely taught teacher education students in their content area courses.

The methods courses that were combined for the clinical model are shown below.

Semester 1	Semester 2
SEC 351: Teaching Strategies for Secondary Schools	**SEC 453: Management of Instruction**
SEC 352: Planning for Student Diversity	**SEC 475: English Methods OR SEC 481: Social Studies Methods**
	LTCY 451: Reading in the Content Areas

University faculty taught education content and theory with a major focus on creating best practice lesson plans in English and social studies highly infused with literacy. They also collaborated with designated high-school teacher mentors to provide co-teaching experiences for teacher candidates and assist them in developing skills in lesson delivery and classroom management. Both university faculty and high-school teacher mentors observed teacher candidates in their classrooms and provided regular feedback on lesson design and delivery. High-school teacher mentors were designated as adjunct faculty to the university and received stipends for their services. Teacher candidates moved through the year-long clinical experience in cohorts.

Each new cohort started the first semester at the rural site and then moved to the urban site for their second semester. Beginning with the second semester of implementation, different cohorts were in progress concurrently; i.e., second semester of cohort 1 at one site while first semester of cohort 2 started at the other. Teacher candidates met together each day with the team of university professors in whole-group learning sessions or in focus groups with the content specialists as needed. This design was developed so that, during the teacher candidates' two clinical semesters, each would receive as much individualized instruction as possible to address needs determined by university and high school professionals.

In this clinical model, teacher candidates also were able to accumulate more than the minimum observation hours required by the state certifying body as well as obtain required experiences such as interacting with parents, assisting at extra-curricular activities, and observing in middle or elementary schools. By including these other compliance requirements in the clinical curriculum, the goal of making the clinical course a seamless experience in the practice of teaching was achieved by providing a single venue for students to meet the certification requirements traditionally bundled into their separate methods courses.

Another issue for implementation of the clinical curriculum was that students were also enrolled in traditional on-campus classes in their content areas during their clinical semesters in teacher education. In order to facilitate students' university schedules, the clinical program was scheduled for two full days a week at the partner schools, leaving three days per week for students to schedule other classes. At the clinical partner schools, part of the students' day was spent in the on-site university classroom, and part of the day was spent in the mentor teachers' classrooms, applying what they were learning.

This brief overview of the program plan represents the starting point for the first two cohorts. The authors anticipated that adjustments would be needed as the program progressed, and indeed they were. Revisions to curriculum delivery will be discussed both in the three strategy implementation sections and in the conclusion.

The move toward strengthening clinical preparation for teachers has attracted strong support from major education organizations in the United States, including CAEP, the Council for the Accreditation of Educator Preparation; AACTP, the American Association of Colleges for Teacher Preparation; ATE, the Association of Teacher Educators; AFT, the American Federation of Teachers; NEA, the National Education Association; and CCSSO, the Council of Chief State School Officers (Cibulka, 2014, p. 420). Yet, as Cibulka notes, one impediment to the development of clinical partnerships for the 21st century is the lack of a strong base of knowledge on clinical preparation, especially knowledge about specific practices that produce effective teachers (420). This article offers insights gained from the authors' immersion in the process of creating and implementing clinical partnerships with two very different high schools over a two-year period.

This paper describes the conceptual framework that informed decisions as strategies were selected and clinical practices developed for a re-design of the university's secondary English and social studies teacher education curriculum. It explains the three key instructional components of the blended courses that we developed under the clinical model: (1) instructional rounds, (2) the inquiry project, and (3) teacher self-reflection. Finally, the article shares certain formative findings from the first two years of implementation, summarizes what was learned about designing curriculum for a clinical model, and details some of the challenges of implementing a clinical model for secondary teacher candidates.

Since research on this particular model and secondary education clinical models in general is still in its formative stages, the authors would not expect to have enough data yet to establish causal relationships for this clinical model. Longer-term qualitative and quantitative data are still being collected for that purpose. Yet the description that follows of the design and implementation of this one model adds to the base of knowledge on clinical preparation that Cibulka calls for, especially in its analysis of the specific practices that were chosen for implementation. The authors' first-hand perspective has unique value as a record of the design, implementation, and revision process for a clinical curriculum.

CONCEPTUAL FRAMEWORK

Our clinical model for teacher education is based on constructivist principles. A foundational principle of constructivism is the claim that "what a person knows is actively assembled by the learner" (Brooks & Brooks, 1993, as cited in Taggart & Wilson, 2005, p. 6); hence, the term constructivism, which emphasizes the process of constructing rather than simply acquiring knowledge. Taggart & Wilson assert that learning is "adaptive" and involves choosing, sorting, and storing what the learner perceives as useful information. A key point here is learner choice; the learner chooses what information to sort and store according to complex variables of prior knowledge, goals and motivation, and the context of the learning situation. Constructivists acknowledge Piaget's premise that learning is a process of change through which learners assimilate (restructure knowledge in order to integrate it into an existing schema) or accommodate (restructure knowledge by modifying existing schema) to achieve goals. In addition to the belief that knowledge is assembled by the learner, Taggart & Wilson describe the following beliefs of constructivist practitioners: (1) learning is nonlinear, and (2) the most effective learning is done through "guided discovery, meaningful application, and problem solving" (p. 8). Constructivist practitioners create opportunities for learners to manipulate meanings and patterns by empowering them through alternative concepts and heuristic procedures. Constructivist practitioners acknowledge the importance of self-motivation and self-reflection as learners struggle to reconcile new concepts with existing schema. As learners engage in this type of productive struggle, they should be engaged in authentic activities, collaborate with others to explore and evaluate ideas, and have access to models of appropriate skills for their learning situation (Taggart & Wilson, p. 6).

As a method for teacher training, a constructivist model situates pre-service teacher candidates in an academic and social context designed to maximize their capacity for learning "in and from their practice" (Taggart & Wilson, p. 3). In a clinical model, teachers-in-training engage in guided discovery as they try multiple strategies for lesson delivery in real classrooms under the guidance of experienced practitioners, then reflect on the results in collaboration with observers and peers, considering aspects of the context that may have affected the results. Their reflections lead to theorizing of practice that influences future lesson design and implementation. In this kind of learning environment, teacher candidates identify their role as problem solvers who are continuously making choices about instruction and assessing the results of those choices in order to understand how to structure lessons that result in deep learning. When teacher candidates combine theory, practice, inquiry, and reflection, they commence down a path of professional growth that will lead to long-term excellence (Zeichner, 2010).

A strong body of research in teacher education (Danielson, 2013; Darling-Hammond, 2000, 2006; Pollard & Collins, 2005; Shulman, 1986; Staunton, 2008; Taggart & Wilson, 2005; Zeichner, 2010) supports the clinical model, insisting that only through a carefully mediated blending of theory and practice under the guidance of knowledgeable and experienced practitioners does a pre-service teacher candidate develop the expertise to make strategic decisions that enhance student learning; i.e., basic expertise at the level of their pre-service training along with cognitive tools for continuing their professional development as they enter the profession.

Not only were the authors expecting pre-service teachers to benefit from the constructivist learning environment that was being created for them, but they also wanted to immerse them in a constructivist orientation toward teaching. Designing the curriculum this way applied the premise that since learning is socially situated (Anderson, Reder, & Simon, 1997; Cobb & Bowers, 1999; Greeno, 1998), the methods of learning should be

socially situated as well. With a goal of immersing pre-service teachers in an authentic learning experience within a clinical model, a curriculum was created that would enable these teacher candidates to apply relevant pedagogical principles to the co-teaching assignments they would be carrying out in their mentor teachers' high-school classrooms over the course of their two-semester clinical experience.

This approach to curriculum design was supported by recent decisions at the state department of education. Because Charlotte Danielson's Framework for Teaching has been adopted as the official heuristic for gauging the development of teacher effectiveness in the state where the university is located, curriculum designers had strong support for applying Danielson's work to the clinical model that was being developed. Using the state-level Professional Growth and Effectiveness System (PGES) (Kentucky Department of Education, PGES, 2014), the authors were able to align the curriculum of their clinical model with criteria that had been established for professional educators. Curriculum design began by framing a series of essential questions of practice, using the key domains in the Danielson model: Planning and Preparation, Classroom Environment, Instruction, and Professional Responsibilities. The following essential questions were used to elicit problems of practice for teacher candidates' consideration during the clinical experience:

- What does effective planning and preparation at the secondary level involve? *(PGES, Domain 1)*
- How does a teacher create a positive classroom environment that supports optimum learning for all students? *(PGES, Domain 2)*
- What processes are involved in implementing and evaluating effective instruction? *(PGES Domain 3)*
- What professional behaviors do successful high school teachers practice? *(PGES, Domain 4)*

Initially, university faculty teaching the courses to be offered in the clinical model met together during summer 2013 to carve out a curriculum that would allow students to meet national accreditation and state certification requirements while participating in the clinical model. In this early stage of developing the curriculum for a clinical model, the planning team considered how they might achieve coherence in knowledge-building and experience-building activities for teacher candidates. Knowing that there would be a designated classroom in the collaborating high schools, a schedule was created for students to spend roughly half their time in the classroom with university professors and half their time in a mentor teacher's classroom. Students met with university professors to learn the theory and methodology of teaching in secondary schools and subsequently spent time co-teaching and applying the methods in their mentor teachers' classrooms.

Darling-Hammond in her work on clinical teacher education emphasizes the importance of developing an ongoing and consistent relationship with the principal and faculty at collaborating schools. The authors' relationship with the two collaborating high schools was designed primarily to produce what a University of Louisville teacher education team described as "embedded engagement of teacher candidates in classrooms with teachers and students" (Evans-Andris et al., 2014, p. 473). The authors agree with the University of Louisville curriculum designers that "targeted space in the school to function as an on-site university designated classroom" (p. 477) is an integral component of the clinical model, and felt it was important to design a curriculum that would make maximum use of the advantages of being on-site. It was desirable for students to start planning, teaching, and managing instruction in the first few weeks of their clinical experience and to participate early on in creating assessments and analyzing results for real students.

For the first year of implementing a clinical model at the two collaborating schools, the university team determined that several components would potentially produce the kind of seamless connections between theory and practice that would help teacher candidates develop conceptual frameworks for effective high school teaching. With this consideration in mind, the team decided to maximize theory-to-practice connections through the following components: instructional rounds, inquiry projects, and reflective journaling. It was important to make intentional curricular choices that embedded these components within a program that would remain true to the key objectives of the courses taught. However, it also meant making difficult choices about compressing other content in order to incorporate these new on-site, practice-driven components.

This was no small task. During the first year of implementing the clinical model, the team experienced highs and lows. In particular, professors found that transitioning from a curriculum of university classroom instruction supplemented by off-campus field observations to a fully immersed clinical curriculum was challenging for everyone, from the teacher candidates themselves to the mentor faculty at the high-school sites and the university professors trying to meld course work and field experiences. Through ongoing reflected in real time, the team adjusted lessons and schedules to meet the demands of the model, reminding each other constantly of the questions driving the plans: What is clinical about this model? How is it different from a non-clinical teacher education program?

During the summer of 2014, with the first cohort of pre-service teachers, the "pioneers," having completed the fifteen hours of university coursework that comprised the new clinical model and with a second cohort halfway through their first academic year, university faculty and teachers from the two collaborating high schools met together to consider revisions to the curriculum and structure of the model. Several issues arose in those second-summer discussions that compelled a re-examination of relevant research on the clinical model. After much discussion, mentor teachers from the collaborating schools and university professors on the team agreed on the following needs for curricular revisions:

- teacher candidates should spend more time working with students;
- teachers candidates should do more co-planning and co-teaching with the mentor teacher;
- teacher candidates should have more opportunities to interact with faculty at the collaborating schools other than their mentor teachers;
- teacher candidates should have more opportunities to observe a variety of teachers interacting with students;
- teacher candidates should have more experiences in managing a high-school classroom, beginning with "drop-in" lessons every day early in the first semester;
- teacher candidates should have opportunities for peer rehearsal with members of their cohort during their university classroom time.

Revisiting seminal work on the clinical model (Darling-Hammond, 2000, 2006; Zeichner, 2010), the team considered again the question of what knowledge-making activities teacher candidates in a clinical model should be practicing, and this question led back to our constructivist base. Teacher education students needed a curricular framework that would support each of them in constructing an individual understanding of how to solve real classroom problems in real time. The team knew that, while some basic content knowledge and teaching strategies may be directly taught, practiced, and memorized, leaners need a different kind of instruction if they are to arrive at higher levels of cognition where they are able to use knowledge in new ways. This is precisely the challenge pre-service teachers encounter too late in many traditional teacher education programs, when as student teachers, they begin to practice in real K-12 classroom what they have learned in their university classes.

The authors had seen teacher candidates during those first semesters of the clinical experience struggle with the dissonances between their preconceptions about teachers, students, and teaching methods and the encounters with constructivist pedagogy and real classroom situations that were part of the clinical model. They acknowledged that this kind of struggle was necessary for deep learning to occur. The clinical experience intensifies the struggle for teacher candidates as they are constantly being required to reconcile theory and practice, and a clinical preparation program should find ways not to lessen the struggle but to help teacher candidates build resilience through experience in sorting through and solving problems.

Thus, the key structures that were chosen for closer focus during the refining process for the second year of the model—instructional rounds, the inquiry project, and teacher self-reflection—all were designed to promote an inquiry mind set in which teacher candidates would "reflect on and process a wide variety of information about situations" (Schunk, 1996, p. 272). The team wanted them to actively seek solutions to problems, agreeing with Schunk that "teaching is not a lockstep function that proceeds immutably once a lesson is designed" (p. 273). The next section focuses on describing these three structures that formed the basis of the inquiry approach for this clinical model.

IMPLEMENTATION AND FINDINGS

Instructional Rounds Process and Findings

One strategy that was implemented to create an inquiry-based curriculum was taken from the Harvard Instructional Rounds model that has been implemented for several years in the university's local educational cooperative, the Green River Regional Education Cooperative, which serves forty school districts in Western Kentucky University's service area. The cooperative had already provided the Harvard rounds training to local school superintendents and administrators in order to develop rounds networks in the region. The local school districts where our partner high schools are located have used this model, making it a logical choice to use in our clinical teacher preparation program.

Developed by City, Elmore, Fiarman, and L. Teitel, the Harvard Instructional Rounds model, as described in *Instructional Rounds in Education* (2009), is

> an adaptation and extension of the medical rounds model, which is used routinely in medical schools and teaching hospitals to develop the diagnostic and treatment practice of physicians . . . [G]roups of medical interns, residents, and supervising or attending physicians visit patients, observe and discuss the evidence for diagnoses, and, after a thorough analysis of the evidence, discuss possible treatments. The medical rounds process is the major way in which physicians develop their knowledge of practice. (p. 3)

Although one of the common misunderstandings about rounds is that they are evaluative in nature, City (2011) defined instructional rounds as "an inquiry process. People doing rounds should expect to learn something themselves" (p. 37).

As the curriculum planning team developed clinical experiences for the teacher candidates, the Harvard model's focus on collecting descriptive, non-evaluative data during classroom observations and "building a trusting, respectful community that pushes itself hard and develops a common language and understanding of learning and teaching" (p. 38) seemed critical in developing teacher candidates' knowledge of effective teaching and learning practices. The team decided to apply the basic phases of the Harvard model as they planned clinical rounds experiences for the teacher candidates.

The Harvard Instructional Rounds model includes the following four phases: 1) developing a problem of practice that is based upon the school's improvement goals and professional development focus; 2) observing classrooms with focus questions and filtering the data collection through the lens of the problem of practice; 3) debriefing, which involves analyzing the data in steps from description to analysis to prediction; and 4) determining next level of work (City et al., 2009).

In order to use a model that was originally designed for practicing teachers and administrators, some adaptations needed to be made, as the focus for this clinical model was developing inquiry skills in undergraduate teacher candidates. The first modification was to change the "problem of practice" to a "focus topic." In organizing the curriculum for the clinical program, the authors scaffolded content and skill progressions throughout the year, based on Danielson's model for effective teaching and state certification requirements; topics of study that guided the curriculum of the clinical model made logical focus topics for instructional rounds. Topics in semester one included standards, objectives and learning targets, critical thinking, relevance, and planning for diverse learners. Second semester topics included procedures and routines, literacy strategies, classroom management, unit planning, and assessment.

A second modification was to change the Harvard model's "next steps" to "developing my professional practice." As teacher candidates learned content and skills in a clinical model, the team's goal was to develop both their teacher identity and their professional practice. Thus, the classrooms observed, the data collected, and the patterns analyzed during instructional rounds provided a relevant context in which students could begin to develop practice-based theories about teaching and learning as well as consider how they might grow individually as teaching professionals; that is, how they could see themselves enacting the practices they were observing. It was hoped that, after observing several different teaching styles centered on a focused topic of teaching practice, students would start to develop skills not only in collecting relevant data but also in analyzing how contexts of teacher style and classroom culture can affect the implementation of teaching strategies.

As the team examined the debriefing phase of the Harvard rounds process, they found that analyzing the specific data for patterns worked in the setting at our collaborating schools, but a more pressing goal was to go beyond that to have teacher candidates create hypotheses about effective practice related to the focus topic. The last modification, then, was to have students use the specific data and analysis of patterns to create hypotheses and questions related to the focus topic. City et al. (2009) describe the synthesis that occurs from learning in instructional rounds as follows: "It forces multiple actors, with often quite different interests and ideas, to begin the difficult process of forming a coherent view of what constitutes powerful teaching and learning in classrooms" (p. 8).

Throughout the clinical year, WKU faculty chose focus topics that aligned with program objectives and curriculum. Next steps involved creating focus questions aligned with Danielson's Framework for Teaching (The Danielson Group, 2013). The focus questions were used as headings on data collection sheets for teacher candidates to use in classroom observations. These data sheets included prompting questions to guide the data collection process for the teacher candidates. For the instructional rounds on procedures and routines, for instance, the following focus question guided the rounds experience: How do teachers use procedures and routines to maximize instructional time? These four prompting questions grounded the collection of specific, non-evaluative data from each classroom observed: 1) What is the teacher doing or saying? 2) What are the

students doing or saying? 3) What do you notice about procedures and routines? and 4) What resources do you notice in the classroom? How are they used?

University faculty organized teams of both teacher candidates and faculty members, who observed and collected data from three to four different classes during a one-hour class period at the partner high school. Once observations were completed, teams returned to the classroom to begin the debriefing process. The following debriefing protocol reflects the process and modifications from the Harvard model that the team used:

> (1) Description - Read through your notes from the observations, your pieces of evidence. Select five to ten pieces of data and write each on an individual sticky note. Within your small group, share your pieces of data, helping each other stay in the descriptive rather than evaluative voice. Remember to ask each other what you saw or heard that makes you think that. Allow everyone to speak once before anyone speaks twice.
> (2) Analysis - On chart paper, sort the evidence (sticky notes) in ways that make sense to your group and help you make sense of what you saw. With the group, discuss and identify patterns; don't forget to account for variation as well as similarities.
> (3) Application to professional practice - Review your descriptive evidence and patterns in light of the focus topic. Think about and discuss as a group what you hypothesize is effective practice regarding the focus topic, i.e. what most impacts student learning. Synthesize and chart three or four hypotheses regarding effective practice. Remember that "If-then" statements work well as hypothesis statements. Add two or three questions your group has or observations you still want to learn more about on this topic.

As rounds teams finished charting their hypotheses and questions, each team shared its findings. University faculty guided the discussion to include similarities and differences between the groups' thinking, connections to previous classroom readings and discussion topics, and examples from the teacher candidates' clinical classroom experiences. At the end of each instructional rounds experience, group data sheets of hypotheses and questions were combined into charts and given to teacher candidates. Follow-up readings, discussions, and reflective journal prompts helped teacher candidates to further develop their thinking on the focus topic.

Data from seven instructional rounds experiences were collected. The first five focus questions in the table below were used with teacher candidates in cohort one at school number one during the first three months of the clinical preparation program. The last two focus questions were used with cohort two teacher candidates during the second semester of the clinical preparation program at school number two. Data were analyzed and sorted into coding categories using "certain words, phrases, patterns of behavior, and subjects' ways of thinking…" (Bogdan and Biklen, 2003, p. 161). For each focus question, the authors coded an "A" for a correct or accurate hypothesis about the focus topic and "I" for either an inaccurate hypothesis about the focus topic or a statement that was not a hypothesis. For the list of questions teacher candidates generated on each topic, the researchers coded questions as "L" for lower levels (remember, understand) and "H" for higher levels (apply, analyze, synthesize) of Bloom's Revised Taxonomy (Anderson et al., 2001). The table in Appendix A shows the instructional rounds focus topic questions, the number of hypotheses generated by teacher candidates that rated "A" and "I," and the number of questions developed that rated "L" or "H."

One initial finding from the first rounds experience was that teacher candidates did not understand how to create an effective hypothesis statement related to the focus question. From the ten hypotheses generated in the debriefing session, seven of those were inaccurate. Of those seven, six of the sentences were not hypothesis statements. University faculty realized that teacher candidates needed a mini-lesson on developing good hypothesis statements using an "If…then" or a "When teachers..., then students…" format. After this mini-lesson, data showed that the number of correctly written and accurate hypotheses increased.

A second finding was that some focus topics prompted more accurate hypotheses and higher-level questions than others. On the topic of critical thinking, for instance, nine out of ten hypotheses were accurate and insightful for teacher candidates to be making the first few weeks in a teacher preparation program. Some hypotheses were "If we ask open-ended questions, then students will be encouraged to respond in a way that requires higher level thinking"; "If students draw their own conclusions, they remember the content better"; and "If we help students make real world connections, then they can build on previous knowledge." Sample questions were "How does the teacher prepare to motivate students to reach higher levels of thinking?" and "How can we use historical documents to teach critical thinking?"

Relevance was another effective rounds focus topic, as eleven out of thirteen hypotheses were accurate, and four out of five questions were higher level. Hypotheses such as "If teachers encourage students to connect subject-

specific content to their own interests, students will be more likely to engage in class activities and discussion" and "Clearly showing historical impacts on current events will help students see the relevance of what they are learning" showed developing thinking about making lessons relevant to adolescent students. The following question generated from rounds shows that teacher candidates were beginning to grapple with teaching content in a way that relates to students: "How can you incorporate relevance in lessons when assignments are basic skill building?"

On the topic of effective questioning and discussion techniques, teacher candidates generated five out of five accurate hypotheses. Statements such as "If you scaffold questions from basic/recall/simple to critique/higher level/complex, you can help with student engagement" and "If questions have relevance to students, this may lead students to ask their own questions" showed the teacher candidates were beginning to analyze questioning practices that they observed as they developed their own skills in questioning.

The rounds focus question about planning for diverse learners prompted nineteen out of twenty-five accurate hypotheses. Some examples of these accurate statements are "If teachers recognize that we all have different backgrounds and perspectives, then it can be celebrated and not ignored" and "Teachers should understand their students and their abilities to be able to direct the lesson plan in a way that all students will be engaged." While some hypotheses demonstrated the beginnings of inclusive teaching philosophies early in the clinical year, some of the questions generated in this rounds experience reflected either a lack of knowledge about diverse learners or a lack of context about the specific learners to understand why the teacher was delivering instruction in a certain way. Questions such as "Is seating arrangement a way to deal with diversity?" "Are nonverbal accommodations the most effective way to deal with diversity?" and "My teacher pointed out that male writing is harder to read and sloppy. Is that the typical case?" demonstrated to the university faculty that for teacher candidates to be successful interpreting what they watched in classrooms, more background knowledge on diverse high school learners was needed.

Similarly, the rounds focus question about how teachers organize physical space and resources prompted rather disappointing, yet information-filled findings. Only three out of seven hypotheses were accurate, and inaccurate statements such as "If desks are in rows, students will be more engaged" and "If there is a focus wall, students need to face it" show some strong misconceptions about student engagement and effective teaching, misconceptions perhaps representative of folk pedagogy (Bruner, 1996).

Another finding from the rounds data is that the number of questions charted by teacher candidates about the focus topic dropped in the last two instructional rounds sessions. There are two major reasons that explain this change. First, the last two rounds sessions were conducted in the second semester of the clinical teacher program. At that point in the year, teacher candidates had participated in the rounds process multiple times before and had also worked two days a week in a high school throughout the first semester. Second, not only was their experience with the rounds data collection and analysis protocol more familiar, but they had taught several lessons with high school students to put their newly learned skills about these topics into practice.

City et al. (2009) describe the impact of the constructivist, inquiry-based nature of learning from the instructional rounds process as follows:

> The model of learning that is embodied in the rounds process… puts educators in the positions of having to actively construct their own knowledge of effective instructional practice and to develop…a shared understanding of what they mean by effective instruction. The process of active construction helps educators articulate and refine their own theories about how to support learning and builds their capacity to both use and generate knowledge. There is, unapologetically, a certain "constructivist" bias in the rounds process. When we work with people, we specifically avoid giving them "answers" to the most pressing problems they face, because to give "answers" would be to transfer the responsibility for learning from them to us. (p. 10)

The team's focus on inquiry through instructional rounds reflects the following learner-centered principles: (1) learning complex subject matter should be "an intentional process of constructing meaning from information and experience" (American Psychological Association (APA), p. 3); (2) successful learners "create and use a repertoire of thinking and reasoning strategies to achieve complex learning goals" (p. 4); and (3) learning complex skills "requires extended learner effort and guided practice" (p. 5). Along with instructional rounds, the inquiry project that was developed for our second-semester students provides an extended, guided application of this inquiry approach to learning.

Inquiry Project Process and Findings

During the first year of implementation of the clinical model, realizing the need to include an inquiry project as one of the students' tasks, the authors created an assignment in which students researched a classroom diversity topic, synthesized their findings in a traditional research paper format, and used their papers as guides for leading a table discussion on their topic. Neither the students nor university faculty were satisfied with the resulting papers or table discussions. Compared to the usual classroom discussions based on collaborative learning and praxis, both the papers and the table discussions were flat. Thinking back over that failed project, the team realized that the disappointing results of that assignment highlighted a central issue of planning for clinical teacher education. An effective clinical model cannot be built by lifting assignments and other teaching structures from a non-clinical approach. The research project that had been implemented was not coherently integrated into the theory-to-practice orientation that had been established as a central mode for learning in the clinical curriculum.

Not wanting to discard the inquiry project altogether for second-year students, it was decided instead to incorporate elements of individual inquiry throughout the second-semester curriculum, which would culminate in a Pecha Kucha style mini-conference, where students would share their inquiry results. Students were already practicing inquiry thinking together in instructional rounds. As a natural extension of that inquiry thinking, the revised individual inquiry project would have them conducting individual targeted classroom observations, interviewing high-school faculty, and discussing their problems of practice with their mentor teachers at the sites. These activities would be supplemented with self-reflections on classroom experiences and text-based research in professional journals. The following section discusses the structural elements of the inquiry project for the second year: (1) the professional growth plan, (2) the inquiry process, and (3) self-reflective journaling.

As the university team planned how to implement an authentic inquiry project in semester two of the clinical model, the intent was to make the work of the teacher candidates as similar as possible to what practicing teachers were doing in the partner schools. The Professional Growth Plan (PGP) assignment was developed based on the model for practicing teachers in the state where the university is located, and it became the basis for a semester-long inquiry project.

At the end of the first semester in the clinical model, teacher candidates scored themselves using the PGES framework based on five lessons taught, feedback given from their mentor high school teachers, and debriefing conferences with the university team. These self-evaluations with supporting data were used as the foundation for the PGP in semester two. Each teacher candidate discussed his or her strengths and explained growth areas that would be the personal focus for work in semester two. Teacher candidates determined six strength areas and six areas for growth, the data from which is represented in the table below for nine teacher candidates in cohort one and seven teacher candidates in cohort two. The table shows growth areas and numbers of teacher candidates from each cohort who chose those topics. The raw data have been collapsed into the general categories of lesson planning, content, and classroom management.

Growth Area	Cohort One – Number of Times Mentioned	Cohort Two Number of Times Mentioned
Lesson Planning - Instructional strategies (varying for student needs, introducing new skills, assessing progress, and designing high-level tasks and questions)	15	18
Content (handling student misconceptions, making content relevant, showing multiple perspectives)	15	10
Classroom management (creating a positive environment, managing time, managing behavior, procedures, using resources)	24	15

Using students' PGP growth areas, each student conferred with university faculty to select a problem of practice, based on classroom observations and self-reflections. Sample inquiry project questions from these conferences include the following: (1) How does a teacher remain flexible while also requiring student accountability when

planning, delivering, and assessing? (2) What are effective questioning strategies to engage students in higher level thinking about social studies content? (3) What methods can a teacher use to communicate high expectations for social studies students to benefit their learning? (4) What strategies and techniques can be utilized to help differentiate content to ensure various demographics of students are addressed? (5) What are effective strategies and techniques that will engage students in higher level thinking in social studies?

Having chosen a problem of practice early in their second semester, students continued to engage in the inquiry process through the components mentioned above: individual targeted classroom observations, interviews with high school faculty, discussions about their problems of practice with their mentor teachers at the sites, self-reflections on their teaching, and text-based research in professional journals. Teacher candidates checked in with university faculty at designated points during the semester to review findings and adjust plans. They continued to consider the problem in different classroom contexts throughout the semester, including observations in specific high school classrooms suggested by their mentor teachers and two off-site visits to other schools. Finally, an additional element was added to the lesson plans they were designing in the following question and statement: "Is there anything you would like specifically observed during this lesson? Connect to your PGP and inquiry project." According to the inquiry project plan, students would prepare an annotated bibliography of print sources that addressed their problems of practice; they would also prepare and deliver a Pecha Kucha presentation during the final week of the semester. Students and professors agreed that the new structure for the individual inquiry project is a much more authentic application of inquiry learning than the first-year traditional research project in that it has multiple connections with the other work of the semester and with the students' own teaching.

The following is an abbreviated version of the timeline that was used for embedding the second-semester individual inquiry project into the work of the semester.

> Week 1: Narrate a teaching story from your first semester that illustrates an important moment in your personal understanding of what it means to teach in a high school.
> Week 2: Narrate a teaching story from this week that struck you as worth thinking more deeply about, including contextual factors important to the narrative.
> Week 3: Narrate a third teaching story and determine two or three problems of practice that have arisen from your observations and teaching and that are important to you.
> Week 4: Identify one problem of practice related to your teaching and your PGP. Share your problem and assumptions with your mentor teacher and university faculty and identify critical areas in which you need more information.
> Week 5: Phrase your problem of practice as a researchable question, confirm it with university faculty, and create a preliminary list of professional resources that address your problem.
> Weeks 6-9: Begin to assemble an annotated bibliography for the problem of practice you have identified, explaining how each source helped you see the problem in a different way or corroborated other information you have gathered.
> Week 10: Bring to the week's table rounds questions from your problem of practice that you still need answered. Reflect on how you will use the knowledge you are gaining from exploring your problem of practice to design lessons and teach more effectively.
> Week 11: Review your reflections from your post-teaching debriefings so far this semester and describe your progress in understanding and addressing your problem of practice.
> Week 12: Describe an unanticipated scenario from one of your recent classes that made you think on your feet. Were you able to adjust your lesson or your delivery to solve the problem? If so, how so? If not, now that you have had time to think more about it, what might you have done differently?
> Week 13: Consult with your mentor teacher and university professors to identify several classroom teachers to observe and interview about your individual inquiry topic and describe the similarities and differences in their approaches.
> Week 14: Reflect on your progress in meeting the goals of your PGP.
> Week 15: Complete your annotated bibliography and present your findings to your peers in a Pecha Kucha presentation.

As the timeline above shows, the stages of the individual inquiry project are closely tied to other components of the clinical model, including after-teaching debriefing conferences with mentor teachers and university faculty, "work-on- next-time" discussions related to the PGP, and specific questions addressed to the observer on lesson plans. The lesson plan observation question asks the student to connect the question specifically to the PGP, inquiry project, and/or strategies used in clinical lab time. Reflection questions for students to complete after teaching and watching videos of themselves teaching include the following: "Based on your PGES self-

evaluation, describe a strength and area for growth from this teaching experience" and "From this teaching experience, how is your skill set developing on your inquiry project or PGP focus areas? What are your next steps?"

Self-reflection Process and Findings

Revising the inquiry project helped us think about another component of the first-year model implementation that had been less effective than anticipated, the reflective journal. The reflective journal had been designed to help develop a habit of metacognition in teacher candidates by giving them fifteen minutes in the classroom at the end of each clinical day to reflect on some aspect of their practice. Prompts for the day might be based on classroom lessons, course content, classroom experiences, teaching problems and successes, or developing one's teaching identity. Time was also provided after the writing to share thoughts on the topics. In its first instantiation, the self-reflective journal resembled the kinds of journals a traditional teacher might use to encourage reflective thinking and writing in a classroom.

In examining the first-year journal responses, the team noted that some students' journals showed much more in-depth reflection skills from the beginning while others seemed never to push beyond simple description and surface commentary. It was determined that students needed practice and feedback to develop the kind of reflection skills that would enable authentic reflective practice. Further, we noted that entirely open-ended prompts such as "Reflect on today's teaching experience" were not in themselves productive of the kind of critical reflection that supported the other components of the clinical experience. During that first year, students had not been successfully prepared to reflect as teaching professionals because it had been assumed that they had an understanding of the reflective process that they did not have.

Also, in reviewing the prompts from the first two semesters of work with the first cohort, the team realized that students had been asked to address too wide a range of topics in their journals. Therefore, their reflections did not build upon themselves or support the teacher candidates in developing deeper reflective skills. Several students agreed with the team's conclusions, as expressed in their end-of-year interviews, where they mentioned the journals as "add-ons."

Based on the analysis above, the authors reviewed the key literature on reflective thinking in teacher education (Dewey, 1938; Pollard & Collins, 2005; Schon, 1983; Taggart & Wilson, 2005). Just as with the original plan for an inquiry project, the first plan for reflective journaling had diminished effectiveness because it had not included an intentional progression of tasks embedded in practice. It had lacked focus and authenticity. So rather than abandoning the journals, because the team felt that establishing a reflective habit of mind was so basic to the clinical approach, it was decided that the prompts should be revised to complement and support other inquiry components. To do so, the authors created weekly rather than daily prompts; these weekly prompts called for longer reflections. Prompts were also re-designed to represent a progression of reflective skills based on the Dewey five-stage reflection model: (1) identify a problem; (2) observe and refine the problem; (3) develop a hypothesis; (4) scrutinize the hypothesis by applying logical reasoning; and (5) test the hypothesis in practice (Dewey, 1938). Finally, the reflective journals were tied to the inquiry project and the PGP to provide students a vehicle for greater focus in their reflections, as the list of weekly prompts above demonstrates. The prompts begin by asking for rich description and intermittently progress to questions of context, assumptions, and conflicting information, concluding with testing the results. The redesigned prompts support teacher candidates' progressive development in using the reflective process throughout the semester. Thus, the reflective journal, when reconceived as the synthesizing feature of the clinical experience, blended the rounds experiences, teaching evaluations, and PGP into a year-long experience in critical inquiry.

As a culminating product of critical inquiry supported by reflection, the Pecha Kecha presentation required teacher candidates to re-visit their findings from selected focused readings, observations, interviews, peer discussions, and classroom experiences. Because the Pecha Kucha format requires image-heavy slides to represent findings on a research topic, teacher candidates had to think deeply about the relationships between their varied sources of information. The typical requirement for a Pecha Kucha presentation of twenty slides with twenty seconds of oral commentary for each slide forced them to prioritize, summarize, and organize their findings in an engaging format. All members of the university faculty who attended the Pecha Kucha session remarked on the degree of professionalism and ownership of the topic that marked students' delivery. We believe that by designing the instructional rounds, inquiry project and reflective journals as mutually supportive activities, we had hit upon a plan to maximize the teacher candidates' critical engagement in clinical practice.

The three curriculum structures that were re-designed for the second year of implementation were discovered to be significant improvements over their previous counterparts in the team's original clinical model. The results of

these revisions provided topics for consideration in the summer 2015 curriculum meetings, as the university professors reviewed the first two years of clinical model implementation Two important lessons were learned during those first two years: first, that curriculum planning for a clinical model must go beyond stretching, twisting, and folding non-clinical curriculum to make it fit into a clinical teaching environment and, second, that every curricular decision made when designing a clinical model has to stand up under inspection for its authentic theory-to-practice affordances.

Implications

Zeichner (2010) quotes Arne Duncan, U.S. Secretary of Education, as saying, "It takes a whole university to educate a teacher" (p. 1); while the authors wholeheartedly concur with Duncan, still they found that moving from a traditional university teacher preparation program to a fully school-imbedded clinical model that focused on constructivist teaching and inquiry would inevitably prove to be a journey of challenges, experimentation, and lessons learned. This university's clinically based curriculum, developed by a team of university and public school teacher mentors and focused on PGES guiding questions, has been implemented through the inquiry approaches discussed above. The "products" of the model are teacher candidates who are capable of designing, implementing, and reflecting on their teaching practice, as is evidenced in this teacher candidate's reflective journal entry:

> Throughout this semester, I have made many transitions in my teaching preparation. I have gone from having less than thirty hours of experience to having over one hundred. I have gone from considering the ideas of planning and preparation to implementing these factors in an actual classroom. I have gone from simulated to reality, from theory to application, and from idealized thinking to laborious (but rewarding) doing. Most importantly, I have gone from holding a high level of uncertainty about the teaching profession to holding a passion for the profession. (ELA Teacher Candidate, Cohort 1)

This model-in-progress is offered as a platform from which other higher-education institutions may begin to design curricula for clinical teacher education suitable to their unique contexts. Evans-Andris et al. (2014) affirm the need for action research "in which practitioner-researchers conduct systematic inquiry about their own professional practice" (479). The authors share here their process of reflection as they designed and revised their clinical curriculum over a two-year period as a resource for other university-school partnerships in the process of developing effective clinical models. Finally, the authors join Evans-Andris et al in their call for the development of other models with potential "exportability" (p. 479), models informed by thoughtful analyses that trace the development of clinical programs in teacher education. In doing so, the information contained in this article answers NCATE's call for "dramatically different models and strategies for preparing teachers in clinical settings" (King, 2013, p. 1). It is presented as the impetus for an ongoing conversation about how teachers can be better prepared to face the challenges of twenty-first-century classrooms across the globe.

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APPENDIX A: Hypotheses Generated from Instructional Rounds

PGES Guiding Questions for XXXX Curriculum	Instructional Rounds Focus Questions	Number of accurate hypotheses (A)	Number of inaccurate hypotheses (I)	Number of high-level questions (H)	Number of low-level questions (L)
What does effective planning and preparation at the secondary level involve? *(PGES, Domain 1)*	How are standards and learning targets aligned to instructional activities?	3	7	3	2
What does effective planning and preparation at the secondary level involve? *(PGES, Domain 1)*	How is critical thinking embedded into assessments and instructional tasks?	9	1	6	1
What does effective planning and preparation at the secondary level involve? *(PGES, Domain 1)*	What diversity do you see in the classroom? How do teachers accommodate for diverse learner needs?	19	6	4	4
What processes are involved in implementing and evaluating effective instruction? *(PGES, Domain 3)*	How do teachers implement relevant instruction?	11	2	4	1
How does a teacher create a positive classroom environment that supports optimum learning for all students? *(PGES, Domain 2)*	How do teachers organize physical space and resources to create an effective classroom culture?	3	4	2	2
What processes are involved in implementing and evaluating effective instruction? *(PGES, Domain 3)*	How are questioning techniques and discussion strategies implemented in the classroom?	5	0	0	0
How does a teacher create a positive classroom environment that supports optimum learning for all students? *(PGES, Domain 2)*	How do teachers use procedures and routines to maximize instructional time?	4	0	0	1

