

Partnering to Prepare Rookie Teachers Online

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In June, 2013 the California Commission on Teacher Credentialing released a Program Sponsor Alert announcing that the Commission had adopted changes to Pre-service Preparation, Support, and Supervision requirements for the Multiple Subjects, Single Subjects, and Education Specialist intern programs in California (<http://www.ctc.ca.gov/commission/agendas/2013-04/2013-04-agenda.html>).

As described in the Commission's Program Sponsor Alert, preparation programs would now be required to provide pre-service teachers with content to support English Language Learner students (ELLs); specifically, novice teachers would need to be given access to the following: principles of educational equity and diversity, linguistic development, current research related to second language acquisition, classroom management, families and culture, forms of assessment specific to English language proficiency and development, differentiation, structured oral interaction, analysis of literacy demands, and specific pedagogies and strategies designed to support English language development.

At almost the same moment, the New York State Education Department introduced a required and high stakes examination for novice teachers through which they would be able to demonstrate their capacity to "educate all students." Given the bi-coastal need, the High Tech High Teacher Credentialing Program and New Visions for Public Schools, in partnership with the San Diego County Office of Education and the San Diego Unified School District, began a process to meet the change in new teacher preparation requirements. The partners made two decisions: first, they agreed to develop, deliver, and evaluate an online English Language Learner course to meet the new content requirements. Second, in preparation for course development, the partners designed and the New Visions team implemented an evaluation of the online and blended courses that had been developed for teachers in San Diego County who had sought to become highly qualified as defined by NCLB federal legislation (Trachtman, Koenigsberg, Zheng, Cho, & Marlow, 2014).

The results from the San Diego County evaluation influenced the design of the first course for rookie teachers implemented in summer 2014. This 8-week course focused heavily on reading research on language acquisition theory, a focus designed to raise novice teachers' awareness of the issues involved in teaching English Learners. Comments from participating New York and California novices that summer (e.g., *"I now teach EL students and do not have resources from the course to help me because I did not get a solid grasp of how to apply the strategies shown in the videos or laid out in the readings."*) raised important questions for program designers. Through the collection of these anecdotal data coupled with a rigorous comprehensive evaluation completed by a team based at New Visions (Trachtman, Koenigsberg, & Zheng, 2014), six key areas were identified in need of improvement. An online education consultant worked with one of the course instructors to re-design the course for implementation in summer 2015. With additional philanthropic support, the partners evaluated the re-designed course. The study that follows reports on the new tools developed by the partners to evaluate their online courses and examines the results for both the 1st and 2nd course versions.

Review of Related Literature: Online Learning and Teacher Development

We begin this review of the literature with Palloff & Pratt's (2007) caution: "It is always important to remember that in the online environment, we present ourselves in text. Because it is a flat medium, we

¹ Support from the Schusterman Foundation provided High Tech High and New Visions for Public Schools with the resources to design and implement the 2014 and 2015 courses and evaluations.

need to make an extra effort to humanize the environment. In the face-to-face classroom, students have the opportunity to get to know one another as people--before or after class, during classroom discussions, and in other campus locations such as the student lounge. In the online environment, we need to create these opportunities more purposefully." Many argue that online and blended courses are viable options for addressing the shortage of highly qualified teachers in hard-to-staff subjects, in part because of the flexibility they afford to both students and instructors. Smith, Smith, & Boone (2000) sought to compare the efficacy of online and traditional face-to-face instruction; the study's sample was comprised of nearly 60 preservice educators enrolled in a course on "educational technology integration." Results showed that student outcomes in online and face-to-face instruction were comparable, although the authors posited that online discussion provided an advantage over its traditional counterpart. Esprivalo Harrell, & Harris (2006) compared the online post-baccalaureate teacher education program at the University of North Texas to the institution's traditional baccalaureate teacher education program and found that the online program was more successful in attracting a diverse candidate pool, including minority students and career changers. The online program also attracted more students to teach math and science, both subjects identified as "critical shortage areas." The authors also report that students in the online program had comparable teacher quality ratings, as determined by GRE scores, state certification exams, and portfolio ratings, and that students were generally satisfied with the online program.

Denton, Davis, Capraro, Smith, Beason, Graham, & Strader (2009) sought to determine what biographical and academic characteristics could best predict whether an applicant to an online teacher education program would enroll and complete the program. They included three years of program data, including 170 applicants and found that the characteristic most indicative of success in the program was the applicant's TExES score (the statewide praxis exam in Texas). Huss (2007) sought to understand principals' feelings toward online teacher preparation programs. By analyzing the survey responses of 326 principals across three states selected via random cluster sampling, the author determined that main areas of concern for principals included how social aspects of teaching might be compromised in preparation programs that were online. A majority (59%) of principals involved in the study reported that they would be "very concerned" if candidates for teaching positions reported that their degrees were primarily attained online; likewise, 95% of principals felt that an online degree did not have as much credibility as one obtained via traditional pathways (p. 3-4). Nevertheless, as early as 2005, Olson and Werhan suggested that online coursework was the next frontier of teacher preparation, especially in traditionally hard to staff subjects. They developed their hypothesis in the context of the rise in alternative teacher certification programs, and the need for remote school districts to meet NCLB's requirement related to highly qualified teachers.

Fisher, Schumaker, Culbertson, & Deshler (2010) compared the effects of computer-based professional development with those of face-to-face professional development using data from two studies. The first found that that teacher' scores on both knowledge and concept diagram tests improved comparably after participating in professional development in either medium, suggesting equitable efficacy. It is, however, worth noting, that teachers who participated in the face-to-face program expressed greater satisfaction that the authors attributed to engagement. The second study focused on implementation and found that participants in both types of professional development programs continued to use the instructional behaviors emphasized in the training.

Smith *et al.* (2000) posited that online and distance learning offered viable solutions to both the current lack of certified special education teachers and the need for relevant and progressive professional development for teachers currently serving students with special needs. Likewise, Salazar and

colleagues (2010) highlighted the merits of online professional development, including widespread access and increased flexibility for participants. They also suggested that online learning allowed for a freer exchange of dialogue. From an administrative perspective, they noted that online professional development courses were cost-effective and allow for cost-sharing arrangements.

Chen, Chen, & Tsai (2009) analyzed transcripts of six online teacher professional development sessions (containing a total of 3600 messages), and interviewed some of the participants. The authors found that online discussions served several purposes beyond continued learning, including as a venue for networking and socialization. Their analysis found that over half of the messages were not related to the topic at hand (p. 1163), although some of these messages were used for teachers to exchange ideas about practice. An additional 27% of messages were designated as “social cues,” leaving just about 28% of messages that researchers established as involving “cognitive or meta-cognitive” skills. Authors suggest that a scaffolded model with more instructor participation could enhance online professional development courses. After completing interviews with participants, the authors suggested that synchronous discussions in the context of online professional development may not have a significant advantage over face-to-face conversations.

Key findings from Dede *et al.* (2005) pointed out the need for deliberate structures to facilitate participant engagement, arguing that social presence was related to student perceptions of learning and course satisfaction, and that online professional development programs provided a less interactive but more reflective environment than face-to-face programs. Dede *et al.* (2009) stressed that much of the available literature was anecdotal or descriptive, and cited the need for the development of an evidenced-based framework moving forward.

Literature on designing blended learning programs, either as professional development programs themselves or to disseminate blended learning strategies to practicing teachers, reflects the ebb and flow of interest from the field. Prior research focused on the effects of technology-based professional development on praxis, which found that “participation in research-based PD programs fosters sustained changes in teachers’ instructional technology knowledge, ability to design and implement technology-enhanced learning experiences for students, and positive attitude toward teaching and learning with technology, (Mouza, 2009, cited in Duran *et al.* 2012, p.316).” Duran *et al.* (2012) also found that the wiki-based professional development program they studied was particularly successful because of the broad application of the technology in question and support at the district level for the program. Wach, Boughton, & Powers (2011) found that faculty peer mentoring practices and the presence of student instructional technology tutors supported the development of hybrid courses at Bronx Community College.

In its guidelines for teaching online, the Southern Regional Education Board (2009) recommended that faculty engage students through the use of differentiated instruction, supplemental materials, and a variety of technology and respect the differentiated needs of learners. Similarly, Baran *et al.* (2011) advocated for the inclusion of learner-centric approaches, as students needed to take greater responsibility and a more active role in their learning in an online or blended course (Baran *et al.*, 2011, p. 429). Baran *et al.* (2011) also stressed the importance of involving teachers in all facets of the design of blended learning courses: “Support programs need to consider teachers as active agents during this process. Instead of building courses for them, a collaborative culture around course design and development needs to be provided and supported. Technology staff and instructional designers should constantly engage in a dialogue about solving problems and making decisions regarding the design and teaching processes of online courses” (p. 435).

Jokinen & Mikkonen (2013) found that collaborative planning was helpful for teachers of blended learning courses despite the time it required. In general, teachers reported that engaging in the development and teaching of blended learning courses allowed them to integrate and, at times, condense courses and subjects, and that they encouraged teachers to try more creative and effective methods. De Gagne and Walters (2009) focused on the experiences of instructors of online courses in their 2009 meta-analysis. They noted that extra preparation and organization was required of online instructors, due in part to the constant flow of feedback from participants and the LMS-collected data. Instructors also found themselves transitioning from lecturers to guides and facilitators of engagement; teaching strategies were affected both by prior technological experience and the ability to learn about their students' instructional needs before the course started; and opportunities for professional growth are inherent in online teaching opportunities but often require additional administrative support. The authors conclude that social presence and a focus on learner-centric practices are required in teaching online courses. Additionally, they noted teachers of online courses required administrative support, training, and performance-based incentives.

Several studies argue that online components of blended learning courses should supplement face-to-face instruction, not replace it, and should be introduced gradually to ease the transition for teachers to implement blended learning systems within their curricula (University of New South Wales; Means *et al.*, 2013). Application of blended learning initiatives also requires a significant time commitment at the beginning of the project. Napier, Dekhane, & Smith (2011) highlight some of the challenges associated with transitioning to blended learning, including time management, balancing course components, engaging students with the material, and providing enough support to students outside of the classroom--especially in regard to determining whether students have the self-discipline required for success in a course with online elements.

Much of the literature emphasized the importance of promoting group work and developing a learning community in the classroom (SREB 2009), in addition to promoting communication among students outside of class time (Napier *et al.*, 2011). Students should also be provided with opportunities to become acclimated to the online environment and/or software participation that the blended course requires. Student interactions and community building are also the focus of McElrath & McDowell's (2008) work. They offer strategies for community creation in online courses, noting that previous research shows that students in online courses often elevate the role of the instructor to that of a model and facilitator of community building. The authors cite Ruth E. Brown's 3 stage process of community building in distance learning (making friends online, community conferment, and camaraderie) and offer strategies to enable student success, ranging from including a chat function to using student stories to illustrate frameworks. Also important in a blended learning context is attentiveness to student responses and timely feedback (SREB). The SREB also emphasizes that students in blended learning classes should understand "digital etiquette" and have a respect for intellectual property and other copyright concerns associated with digital content.

Mandernach, Gonzales, & Garrett (2006) also focused on online course instructors, noting that teachers of such courses could be assessed in the same manner as teachers of traditional courses. They highlight instructor presence--specifically citing teaching presence, instructor immediacy, and social presence--as key capacities for online course instructors. The authors cite Savery's (2005) model for online teacher success-- (2005) presents the following model for online teacher success: **V**isible, **O**rganized, **C**ompassionate, **A**nalytical, **L**eaders-by-example. Their study involved surveying 96 experienced online course instructors; in concluding, they write: "Faculty perceptions regarding the regulation and

evaluation of instructors' participation in online course threaded discussions suggested that specific benchmarks regarding time and frequency of instructor posting in the online classroom may not be as important as setting professional expectations and communicating concrete strategies for instructors' visibility in the online classroom."

Babb, Stewart, & Johnson (2010) surveyed 75 undergraduate students enrolled in hybrid courses. Respondents identified the following as best practices: user-friendly website, well-designed assignments, a forum for faculty/student communication, building a community of learners, prompt feedback mechanisms, and communicating expectations. Establishing benchmarks was also strongly recommended, as useful "in predicting student learning outcomes and satisfaction." A forum for student discussion is also recommended, as the authors found there to be a positive relationship between students' satisfaction and their interaction with their peers.

Taylor's (2011) faculty competencies for online teaching included the following:

1. Attend to unique challenges of distance learning
2. Be familiar with unique learning needs
3. Master course content, structure and organization
4. Respond to student inquiries
5. Provide detailed feedback
6. Communicate effectively
7. Promote a safe learning environment
8. Monitor student progress
9. Communicate course goals
10. Provide evidence of teaching presence

In their description of online teaching principles and online teaching behaviors, Tobin, Mandernach, Taylor, (2015, p. 129) recommended these specifics:

Encourage student-faculty contact

- Set aside regularly scheduled times for online office hours or implement a maximum turnaround time for responses to communications
- Facilitate regular course discussions
- Post course announcements or news updates on a regular basis

Develop reciprocity and cooperation among students

- Assign group or dyad projects
- Require discussion responses to peers.
- Offer encouragement in public ways (e.g., on the course discussion forum); offer criticism privately (n grade-tool feedback seen only by individual students).

Use active learning techniques

- Ask students to summarize and propose next steps.
- Assign "butts out of seats" tasks to give online learners tasks away from the keyboard (e.g., interview experts near students' homes) and ask students to report back to other class.
- Have students create and post study guides.

Respect diverse talents and ways of learning

- Provide multiple ways for students to respond to assignments (e.g., write an essay, recode an audio response, create a video)
- Allow students to respond to discussions using a variety of media
- Present learning material in a manner that enables a range of possible learning paths.

Chickering & Ehrmann (1996) and Chickering and Gamson (1987) Principles of Good Practice

1. Encourage student-faculty contact
2. Develop reciprocity and cooperation among students
3. Use active learning techniques
4. Give prompt feedback
5. Emphasize time on task
6. Communicate high expectations
7. Respect diverse talents and ways of learning

Changing Roles, Relationships, and Competencies. While much has been written about the learning strategies, staffing models, processes, and products of student-centered blended learning, the glaring gap in the documentation and research – and a key driver to transforming any learning system – has been a focus on the teacher. The new definition of student success requires new definitions of teacher and teaching success. In these classrooms, the role of the teacher is both essential and fundamentally different. While many have expressed fears that the introduction of technology and open access to online content displaces the centrality of teachers, student centered tech-enabled learning provides teachers with a clear and direct pathway to personalize learning to meet students’ needs.

Instead of standing at the center of the classroom as the repositories of knowledge and the gatekeepers of student learning, teachers stand at the student’s shoulder, coordinating students’ learning as guides and facilitators. Instead of whole class instruction in front of an undifferentiated mass of learners, teachers customize instruction to the needs of students, based on analysis of real-time data. Internet access and digital tools give teachers and students a larger learning environment and access to knowledge that connects them to people and resources beyond the classroom. With more space for individualizing, teachers have new opportunities to build nuanced and more nurturing relationships with students as they design learning experiences that help students develop their assets and take responsibility for their own growth Williamson, Shaffer, Nash, & Ruis, 2015).²

Teaching presence is the mechanism that bridges the transactional distance between instructor and student in a virtual classroom where direct instruction and facilitation of discourse are achieved through various forms of interaction (Afolabi, 2016; Arbaugh & Hwang, 2006). Ekmekci (2013) and Bowden (2012) presented arguments of the responsibilities instructors hold in setting academic expectations and ensuring that standards of scholarship are upheld. Instructors can create an academic climate that increases connectedness with students and expectation of scholarship by promoting a shared sense of teaching presence (Afolabi, 2016; Ekmekci, 2013). This sense of “being there” or “being together” is experienced in different ways in the online classroom and must be intentionally created for it to be perceived and felt (Lehman & Conceição, 2010). The importance of teaching presence and its influence on the learning process has increased in visibility (Arbaugh, 2013). However, as the online teaching environment has advanced, instructors have not always kept pace, showing a tendency to either rely too

² Shaffer, Nash, & Ruis. (2015). Technology and the new professionalization of teaching. Teachers College Record, 117(12), 1-30.

heavily on technology to form connections with their students or to revert to conventional practices that are more suitable for physical classrooms (Baran et al., 2013; Cho & Kim, 2013; March & Lee, 2016). Those who are new to online environments are challenged with finding suitable approaches to teaching in virtual classrooms because many did not learn that way themselves (Niess & Gillow-Wiles, 2013).

The Evaluation Design

Evaluation Questions and Design

1. What is the overall quality of the online modules?
2. What is the impact of the professional development on teacher preparedness, attitudes, and beliefs about teaching and learning?
3. How does participation in this program affect novice teachers' perceptions of efficacy?
4. How do the overall quality and impact of the EL Phase 1 (2014) course compare to that of the redesigned EL Phase 2 (2015) course?

Mixed Methods Design, Instrumentation, and Limitations.³ The instruments created for this evaluation included a set of rubrics (Appendix A) for evaluating course videos, discussion boards, and assignments and an online survey (Appendix B). Survey development included a review of the online literature and items from the teacher professional development and efficacy research.

Since we were not able to locate earlier empirical studies evaluating online instructional videos, discussion board dialogues, and student work produced during novice teachers' participation in online professional development, we used a more exploratory approach to this component of data collection and analysis. Our researcher-developed rubrics (see Trachtman, Koenigsberg, Zheng, Cho, & Marlow, 2014), based on well-accepted theoretical foundations, were tested for face validity with a small group of experts. Additional support for the rubrics' validity was provided by the results of three prior evaluations where rubric ratings generally corresponded appropriately with survey results. In terms of reliability, we attempted to limit measurement error by having only one researcher review all artifacts from the novice teachers' online experiences. Although circumstances dictated that the researcher responsible for rating the course videos, discussion board dialogues, and student work in the Phase 1 evaluation was not able to work on the second evaluation, we were fortunate in that she was available to train her replacement. The original researcher worked with the new analyst to calibrate their scoring so that artifacts would be rated consistently. After they reviewed and discussed the dimensions of the rubrics together, the new analyst independently scored the artifacts that had been rated in Phase 1 and produced her own ratings. When these differed from the initial ratings, she discussed the reasons for the discrepancy with the original rater. This norming process continued until a high level of agreement was reached. The lead evaluator who reviewed the new researcher's comments provided an additional check on their accuracy.

Survey Components and Constructs

- Course Experience. Items for the Course Experience section of the survey replicated the survey items from the previous set of studies completed by the evaluators (see Trachtman *et al.*, 2014). The

³ A post hoc analysis showed that the Instructor Feedback rubric contained a criterion conflating frequency and quality which raised some concern about the resulting scores.

evaluators and VPSS staff had selected these items from the Student Perceptions of Course Delivery Survey (Babb *et al.*, 2010). Based on a factor analysis of the items, three course experience scales were constructed: Instructor Engagement, Culture of Learning, and Course Design.

- **Course Components Effectiveness.** For each of the VPSS and EL evaluations, items were developed after identifying the most important components in the respective course syllabus. Changes in the component list for the different evaluations reflect modifications in the syllabi. Half of the 2015 components kept the same name as in 2014 and half were renamed. Although they were redesigned and new content was added, Readings, Videos, Discussion Boards, and Presentation of Learning were similar enough in function to retain their 2014 names. However, the Individual Wiki Projects in 2014 became Partner Team WikiProjects in 2015, reflecting a fundamental change in the content and structure of the component. Similarly, Group Work (2014) was changed to Partner Teams in 2015, Reflections (2014) was renamed Module Reflections, and Prior Knowledge Assignments (2014) was changed to Prior Knowledge Thinking Prompts in 2015. Using the same strategy as in earlier evaluations, we created a matrix for respondents to score the effectiveness of each of these course components in relation to the three major course goals.
- **Teaching Preparation.** Imbimbo and Silvernail (1999) created a set of items to examine novice teachers' beliefs about their own abilities. Nineteen of the Imbimbo/Silvernail items were selected for the VPSS survey by VPSS personnel and used again in both the 2014 and 2015 EL surveys.
- **Gibson and Dembo Teacher Efficacy Instrument.** Gibson and Dembo (1984) developed their 2-factor instrument from Bandura's social cognitive theory and his construct of self-efficacy (1977, 1982). The first factor, personal teacher efficacy (PTE), includes 16 items that tap teachers' beliefs related to their ability to bring about student learning. The second, called general teacher efficacy (GTE), includes 9 items that tap teachers' beliefs about the ways in which external factors, such as the home environment, family background, and parental influences, limit the teacher's ability to affect student achievement. Figure 2 in Appendix E presents the PTE and GTE items.

Design and Assessment of Module Artifacts

- **Videos.** Instructional videos were evaluated with a rubric developed from the Danielson teacher evaluation framework and educational research on the effective use of instructional videos in the classroom (Canning-Wilson & Wallace 2000; Cruse 2011; Danielson 2013). The rubric domains included designing coherent instruction, establishing a culture for learning, and engaging students in learning.
- **Discussion Boards.** Discussion boards were evaluated with a rubric developed from criteria constructed by TeacherStream (2009). Domains included Instructional Feedback, Demonstration of Knowledge of Key Concepts, Community Building, Reflection, and Critical Thinking.
- **Instructor Assignments and Student Work.** Instructor assignments and associated student work products were evaluated with a rubric developed from the teacher practices and student work indicators in the Danielson Framework (2013). Domains included assignment design, student response to assignment, and instructor response to student work.

Findings

In order to maximize the mixed methods data collection strategy, we have integrated the presentation and analysis of findings from the review of course artifacts (videos, discussion boards, assignments) and

the survey. Each source of data, however, uniquely contributes to providing answers to the original research questions. Accordingly, the following sections present: a) the observations and discussions based on the examination of artifacts, b) the results of the analyses of survey data, and c) a discussion of the survey results, both separately and with regard to the course artifact analyses.

Video, Discussion Board, and Assignment Findings

Instructional Videos

The Sample. In our initial examination of the EL course modules, we determined that the videos fell into the three instructional categories identified last year:

1. *Pedagogical Theory and Strategy.* Videos that discuss classroom-related instructional practices (e.g., an animated introduction to the “plan and let go” approach) or specific strategies (e.g., a lecture on welcoming new EL students)
2. *Cultural and Historical Context.* Videos that are not solely geared to educators and provide information about EL culture and history (e.g., a description of second language acquisition)
3. *Teaching/Classroom Modeling.* Videos that show teachers in classrooms modeling instructional practices (e.g., footage of a teacher demonstrating TPR [total physical response] techniques in the classroom)

We randomly sampled 12 instructional videos, maintaining the same ratios used in the first evaluation’s sampling process. We included nine Pedagogical Theory and Strategy videos; one Cultural and Historical Context video; and two Teaching/ Classroom Modeling videos. The evaluation rubric for the instructional videos was derived from the 2013 Danielson framework and educational research on the effective use of instructional videos in the classroom (Canning-Wilson & Wallace 2000; Cruse 2011; Danielson 2013). After determining the relevant Danielson domains, we established 3 broad assessment criteria, constructed multiple indicators, and assessed each on a scale of 1-5, with 5 as the highest score. We then determined a total criterion score by averaging all individual indicator scores (see Appendix A).

2015 Video Findings

- The Teaching/Classroom Modeling videos were strong across all three criteria, earning average scores of 5 for Designing Coherent Instruction, 4.9 for Engaging Viewers in Content, and 5 for Video Production and Viewing.
- Some of the highest scoring Teaching/Classroom Modeling videos also included elements of Pedagogical Theory; likewise, some of the most successful Pedagogical Theory Videos were enriched by examples of Teaching/Classroom Modeling. An example of this hybrid form is the video “Best Practices: Checking for Understanding.”
- Video scores were generally high across all indicators, with the exception of one: “Video shows pictures or visuals directly related to the information or lesson being presented.” Teaching/ Classroom Modeling videos scored well on this indicator (average score of 4.5), because, by definition, they showed footage of students and teachers interacting in the classroom. Pedagogical Theory videos received an average score of 3.6 on this indicator; while some of them used lively animated illustrations or classroom scenes to bring their content to life, others included no visuals (and showed only the speaker’s face). Finally, the Cultural and Historical Context Video received a score of 1 on this indicator, as it showed no illustrations, only text summaries of what the voiceover narration was discussing.

- The Cultural and Historical Context video generally received lower scores than the Teaching/Classroom Modeling and Pedagogical Theory and Strategy videos. Although the content was related to the module and the speaker did attempt to apply the material by including some classroom examples, the concepts were complex and theoretical, and therefore less accessible to novice teachers. Additionally, the video was more than 16 minutes long and not broken up into sections, and, as mentioned above, contained no visuals related to its topic; this resulted in a score of 3.7 in Engaging Viewers in Content and a score of 3 in Video Production and Viewing.

2015 Video Findings: Discussion

The most successful videos were Teaching/Classroom Modeling videos and Pedagogical Theory and Strategy videos that integrated aspects of classroom modeling *and* aspects of pedagogical theory. While modeling and discussion of pedagogy are both valuable learning tools on their own, it appeared as though they were more powerful when combined.

Visual presentation emerged as a highly significant factor in the success of a video. From Teaching/Classroom Modeling videos that showed an instructor demonstrating a technique with her students to animated Pedagogical Theory and Strategy videos that showed colorful cartoon representations of what teaching strategies look like in action, the highest scoring videos found a way to bring their content to life with visuals.

A significant addition to the 2015 curriculum was a series of introductory videos. These videos were placed at the beginning of selected modules in the first half of the course (Modules 2, 3, and 4). Each informal and friendly introductory video was approximately one minute long, and served to welcome students to the module and prepare them to navigate its structure and content.

In addition to orienting students to the modules, the introductory videos also made the experience of online learning more personal, in part by preparing students to upload their own videos. The first introductory video (in Module 2) told students about a WikiProject called the “All About Me video.” By presenting the video WikiProject assignment in the context of her personal video, the instructor modeled the format and gave the students something to respond to as they created their own videos. Participation rates were high; 100% of students in each class submitted All About Me videos, and these videos were received with thoughtful and welcoming remarks in the form of comments from instructors and fellow students.

Comparison of 2015 Videos to 2014 Videos

- In two out of three categories, the 2015 videos scored higher than the 2014 videos: 4.7 (up from 3.9 in 2014) for Designing Coherent Instruction, and 4.4 (up from 3.6 in 2014) for Engaging Viewers in Content. The Video Production and Viewing score was slightly lower (4.1, down from 4.4), due to low scores on the “Video shows pictures or visuals directly related to the information or lesson being presented” indicator. Many videos in the Pedagogical Theory and Practice and Cultural/Historical Context categories showed only the lecturer’s face as they spoke or only textual summaries of what the lecturer was saying, without any illustrations or video footage of what they were describing.
- The 2014 videos received low scores on two indicators, “Video demonstrates the how-to and how-not-to of the lesson” and “Video is appropriate to the learning needs of novice teachers.” 2015 videos were more successful in these areas, by providing more deeply reflective commentary that

touched upon both what to do and what to avoid when implementing teaching practices, and by applying theories to classroom scenarios instead of simply presenting them as abstract ideas.

- Although it received lower scores than 2015 videos in other categories, the 2015 Cultural and Historical Context video was stronger than its 2014 counterpart. The 2015 Cultural and Historical Context video received a score of 4 for Designing Coherent Instruction (up from 3 in 2014) and a 3.7 in Engaging Viewers in Understanding Content (up from 2.5 in 2014). Even though its attempts to make the material accessible to novice teachers were not entirely successful, the fact that it did apply its ideas to classroom scenarios put it ahead of 2014's Cultural and Historical Context video, which failed to do so.
- Only seven videos from 2014 were reused in the 2015 curriculum, but some of the videos that weren't featured were still available for student viewing in a section of optional learning materials. Each module in the 2015 course included a non-mandatory section called "Do You Want to Deepen Your Understanding?" that contained these videos and other optional articles and links.

Comparison of 2015 Videos to 2014 Videos: Discussion

While some video content remained the same, many revisions were made around it. For example, even though the revised 2015 version of Module 2 uses the same three videos as the original 2014 version, the theme of the module has changed (from "Responses to Issues of Educational Equity for ELs" to "Getting to Know You") and the accompanying activities have changed accordingly. In 2014, the project team chose to use the same three videos to support a theory-based curriculum in which students were asked to write a Philosophy of Education based on the concepts they were learning, while in 2015, the same videos were used to support a more hands-on approach that asked students to create a family history and cultural backstory for a fictional student and plan a learning experience to meet that student's needs.

The overall move by the designers to create a more learner-engaged pedagogy can also be seen in the revisions to Module 1. In 2014, Module 1 introduced the course with three Cultural/Historical Context videos. In 2015, these videos were replaced with four Pedagogical Theory and Strategy videos. Instead of starting students off with background information about the history of education (e.g., "Brown vs. The Board of Education") as they did in 2014, the project team decided to begin the 2015 course by immersing students right away in the how-to of teaching, with videos about pedagogical strategies and their applications. Note that three of these four pedagogically focused videos were repeated from 2014; however, in 2014 they appeared toward the end of the course, in Module 7. The 2015 course brings them to the front.

In general, the 2015 videos were more successful in presenting learners with opportunities to understand how to apply lesson content. While some 2014 Pedagogical Theory and Strategy videos offered the novices broad and abstract theories, and other 2014 Teaching/Classroom Modeling videos lacked sufficient instructor reflection, the 2015 videos showed improvement on these indicators ("Video is Appropriate to the Learning Needs of Novice Teachers" and "Video Demonstrates the How-To and How-Not-To of the Lesson") and generally reflected the instructors' strong commitment to putting theory into context and making the material accessible.

Discussion Boards

The Sample. We chose to assess discussion forum prompts from the same modules as those reviewed in the first evaluation as well as one additional prompt from Module 7. While the 2014 modules each

offered a single prompt, in 2015 each module offered two prompt options for participants. In response to this change in the discussion board structure and student postings, our first analysis focused on calculating the number and percentage of students who chose each prompt option to determine what we are calling the “preferred prompt” for each module. In addition to assessing the preferred prompts, we assessed two non-preferred prompts in order to examine whether a certain kind of prompt elicited more responses. No prompts from 2014 were used again in 2015.

Class 1 and Class 2 students preferred the same discussion forum prompts across all modules. However, we decided to report on each class’s forum scores separately because the instructors’ and participants’ postings and responses were distinct.

The Framework. We utilized the 2014 discussion forum evaluation rubric again. As described previously (Trachtman *et al.*, 2014), the rubric was modified from criteria initially created by TeacherStream (TeacherStream 2009). Each forum was assessed on eight indicators across five criteria and rated on a scale of 1-5, with 5 representing the highest score. The average score for each criterion was calculated afterwards (see Appendix A).

We also derived a **student participation percentage** based on the number of discussion threads started by participants compared to the total number of participants enrolled in the thread. A 100% participation percentage meant each participant created at least one new discussion thread in the forum. The **participation frequency of the course instructor** was determined from the number of instructor replies to participants’ discussion threads.

Choosing a Prompt: Findings

- Students tend to prefer engaging with prompts that are simple and accessible. For example, both classes showed a preference (78% of class 1 and 60% of class 2) for the module 5 prompt that asked them to describe a project and its potential problems and possible solutions over the alternate prompt in the same module, which asked them to invent a project that could connect a “big idea” to a Common Core State Standard. It is possible that students find prompts that use education jargon (“big idea,” “Common Core”) less accessible than prompts written in simpler language (“projects,” “problems”).
- Students seem to show a preference for answering questions that ask about their personal experience. In module 4, 100% of students in class 2 and 89% of students in class 1 chose to answer a prompt that asked them to describe a time in their lives when their affective filter came into play when learning a new language; the other prompt asked students to talk about their opinion of CELDT scoring.
- In module 2, students showed a slight preference for the second prompt; 61% of class 1 students selected this prompt as did 55% of class 2 students. Generally, students in both classes made similar prompt selections.
- In both class 1 and class 2, some students participated in both prompts, by posting an initial response in one and then replying to other students’ responses to the alternate prompt.⁴ Out of the 12 discussions we sampled, 11 included two or more comments from students who primarily responded to the alternate prompt.

Prompt Selection: Discussion

⁴ Note that participation rates included only posts by students enrolled in a given thread.

Prompt options were a new addition to the curriculum in 2015. Instead of replying to a single predetermined prompt as they did in 2014, 2015's students were instead invited to make a choice, and fulfill their discussion requirement by addressing the prompt to which they felt most drawn. Throughout the course (and particularly in modules 1 and 5), readings and videos present arguments for presenting P-12 students with a choice about what they learn or how they learn in order to help make them feel more engaged in and excited about their work. Indeed, we see that students in both classes are actively engaged with their chosen discussion forums; the participation rate is 100% in 7 out of 8 forums examined, and both classes have consistently high Knowledge of Key Concepts (4.3 average) and Reflection (4.4 average) scores.

In the preferred prompts especially, students worked together to build ideas and reach consensus. For example, module 2's preferred prompt asked students about which teaching techniques would be most and least effective for their EL student. Students replied to each other's posts not only by simply praising their ideas, but also by suggesting ways to modify techniques and sharing relevant teaching experiences of their own. For example, one student responds:

“[Student 1], I too had problems with the action thermometer. And often find myself in the ‘middle’ of two extremes. I would alter the thermometer to offer more choices and diversity of response. Showing children that there is always more than two choices is an important example to set early on. And encouraging students to search for more alternatives on their own, is great practice in active problem solving.”

This kind of creative, critical feedback kept the conversation deeply focused on one of the module's learning objectives: tailoring learning experiences to students' cultural backgrounds and personal needs.

As they did in module 2, students sometimes drew from their classroom experience to enrich their contributions to the conversation across the discussion forums. In the preferred module 7 prompt, students were asked to describe potential pitfalls in providing feedback to students and talk about how to avoid them, and in their replies, some students talked about relevant ideas they've learned from their teaching experience:

“I really resonated with the speaking with students one to one. This is something that I really try and do with my class. Actually, this is the only reason I have kept my teacher desk. I needed a place that was away from the groups of students, where I could converse with individuals without my comments or theirs being broadcast to the rest of the class. I believe it builds trust and creates a safe environment.”

“You bring up a great point about timeliness and multiple perspectives in feedback. Sometimes, we as teachers can give a piece of feedback that doesn't register with a student. But when another person, whether it be a peer or parent, gives them the same feedback, it registers! I find that all the time with my students and as a coach. I also agree that giving feedback at the end can inhibit us from being engaged in the process, which translates to our students.”

In some cases, it appears that the nature of a discussion question helped to shape the quality and type of student responses. For instance, the preferred prompt in module 5 asked students to talk about an idea for a project, list potential problems with the project, and suggest a solution for one of the problems. Because the resulting conversation consisted of critiquing and making suggestions for improving student project ideas, it was nearly impossible for students to participate with passive “back-patting”; i.e., by simply praising other students’ posts. In order to engage with the prompt, students were required to acknowledge problems with their peer’s ideas and consider solutions. Because the prompt demanded a critical eye, student participation received high scores in Community Building (4.5) and critical Thinking (4). See Discussion Forum Scoring Chart.

“Cool project! The first thing that jumped into my mind while reading through your project was that a student could run into a figurative brick wall if they picked a mathematician whose work was too complex. I completely agree with your solution, and might also suggest that you could pick a set pool of mathematicians whose work fits within the right criteria (not too simple, but not too complex for your students to handle). This would still give them freedom of choice, but without the demoralizing effect if a student inadvertently picked something too difficult.”

One practice that seemed to help build active, productive discussions was a pattern of participants including questions in their posts. When students asked questions, the instructor was quick to respond, and often replied with questions of her own. For example, look at the questions asked by a student and the instructor in separate threads of the preferred prompt discussion in module 4:

[Student] “I realized that my filter comes and goes depending on the environment. I too, thought about how to create a positive classroom environment when reflecting on my experience with an affective filter. How, though, can we make our own classrooms a space where students can feel highly motivated, self confident, and without anxiety? I feel that throughout this course I keep saying that I am going to create this welcoming, comfortable, safe space, but I am still unsure of how to do this exactly.”

[Instructor] “Yes, great examples of how a positive experience and excitement around the process of language learning can encourage language production and advancement. Thanks for sharing. I’m wondering what you think a teacher might do to create a similar feeling for students who, for example, don’t come in with a similar excitement?”

These questions led to conversations that linked the personal affective filter experiences that the prompt asked students to share with bigger-picture takeaways that they could apply in the classroom.

Class 2 Discussion Forum: Discussion

Across all modules and prompts examined, much of class 2’s discussion was characterized by “back-patting” behavior: Students agreed with and praised the ideas of others without adding new thoughts to the conversation. This tendency toward “back-patting” is partially responsible for class 2’s low to medium Community Building (3.1) and Critical Thinking (2.9) scores.

Examples of “back-patting” can be found in module 2’s preferred prompt discussion:

“I like that you thought about not just the language benefits, but how the pressures of each situation might affect a student's comfort level speaking. This is such an important part of making our classrooms feel safe, and is necessary for each student to grow his or her skills at the appropriate pace for him or her.”

“I completely agree that [EL Student 1] would be successful in partner activities given she receives feedback well and enjoys working with her peers. Furthermore, the learning centers would really give her the time to seek help or suggestions on her work when needed. [EL Student 1] is a wonderful student :)”

The instructor contributes only 4 replies to this discussion; while this is the most frequently she contributes to any discussion, her rate of response is still only 36%. It’s possible that her low participation may have contributed to this praise-focused pattern of discourse: Without examples of high-quality replies from an instructor, students may have lacked models of good discussion board conversation. In addition to being infrequent, the instructor’s responses here failed to model critical, productive discussion behavior. In this example, she engages in “back-patting”:

“Your rationale for choosing Pick-a-Stick is very interesting. I agree that the fact that [EL Student 1] follows rules (and possibly feels comfort in and safe with the order that those rules provide) would make him more willing to participate when his name is chosen.”

Class 2 received low Instructor Feedback scores across all preferred prompts (for an average of 2), and medium scores across the non-preferred prompts (for an average of 3). The teacher participated with fairly steady frequency (between 1 and 4 times) in each discussion forum, but the smaller number of student responses to non-preferred prompts increased her average rate of reply, giving her a greater influence on the direction of the related discussions. See Discussion Forum Participation Frequency Chart.

This discussion question (describing a project, its potential problems, and a solution to one of the problems) emerges as a very successful prompt.

Just as one prompt can raise the level of discourse, another prompt can lower it: Module 4’s preferred prompt asked students to describe a situation in which their affective filter came into play, and the students of class 2 responded to the personal, narrative quality of this prompt by sharing replies that were more oriented toward “back-patting” than other discussions. For example:

“Thanks for sharing about your experience with foreign exchange students. I appreciate the illustration in how a supportive environment can be a powerful asset in learning a new language, doing well in school, and feeling comfortable in class.”

“I like the idea your teacher implemented to sing with the class. That makes the environment more lighthearted, and lowers anxiety levels in students. I think it’s a great idea I would like to implement with my EL learners. :)”

Although the prompt did not promote critical thinking, it was very effective in encouraging students to reflect on their experience (scoring a 2 for Critical Thinking and a 5 for Reflection).

Comparison of 2015 Discussion Forums to 2014 Discussion Forums: Discussion

As mentioned in the Prompt Selection discussion, 2015's introduction of multiple prompt options may have helped students feel more engaged in their studies by empowering them to make a choice in what they learn and how they learn it. In 2014, the lack of options seemed to make students take a more passive role in participating in the discussion forums.

The 2015 curriculum includes discussion forum prompts in all 8 modules, starting from module 1. This makes group discussion a more consistent presence in the class than it was in 2014, when discussion forum prompts were only included in modules 2, 3, 4, and 5. Ongoing engagement in the discussion forum may give students a stronger experience of being part of a larger group, and may also help them feel more accustomed to and thus more comfortable with participating in the discussion.

In 2014, a correlation was observed between low participation by the instructor and the class's failure to engage in critical, consensus-building discussion. A similar correlation can be observed between the participation rate of class 2's instructor and her class's performance. Just as last year's instructor posted an average of 1.7 times per forum, class 2's instructor also posted minimally, between 1 and 4 times per forum. And in both cases, student posts often consisted of "back-patting," or simple expressions of appreciation or acknowledgement of other students' ideas, limiting the growth and the complexity of the conversation. On the other hand, class 1's discussion board performance in 2015 suggests that an instructor may also be able to positively influence the course of a conversation by modeling critical and engaged posting behavior and by simply having an active presence on the forum; i.e., high participation by an instructor might make students feel that their own participation is being monitored and evaluated.

Assignments

The Sample. The selection of student work had two components. First, for each class, we randomly selected two participants from whom we would assess course assignments. Second, we selected assignments. When possible, we selected assignments similar to those assessed in 2014, but because the assignments were substantially different this year, we chose new assignments in order to reach a total of six assignments. **See Table 9 in Appendix D.** The following table shows the number of work products sampled by type and group.

Assignment Sample Selection

	Class 1	Class 2	Total per Type
Module 2 Partner Team WikiProject	2	2	4
Module 4 Partner Team WikiProject	2	2	4
Module 5 Partner Team WikiProject	2	2	4
Module 6 Partner Team WikiProject	2	2	4

Module 7 Partner Team WikiProject	2	2	4
Module 8 Individual WikiProject	2	2	4
Total	12	12	24

The Framework. The assignments and associated student work products were assessed on ten indicators across three criteria. Each indicator was scored on a scale of 1-5, with 5 as the highest score. The evaluations were derived from student work and instructional practice indicators in the Danielson Framework (Danielson 2013). See Appendix A.

Class 1 Assignments: Findings

- Class 1 had medium to high scores in Assignment Design (3.7) and Student Response (4.6), but low scores in Instructor Response (2).
- Low scores on two related indicators brought down the overall Assignment Design and Instructor Response scores. Because there was no clear grading rubric, every assignment received the lowest possible score (1) for the following indicators: “Assignment rating criteria are specified” (which is factored into the Assignment Design score) and “Instructor ratings reflect the use of clear criteria and are applied fairly across a range of responses” (which is factored into each class’s Instructor Response score). If the Assignment Design score were recalculated without factoring in the “rating criteria” indicator, it would be substantially higher: 4.4 (compared to 3.7). Likewise, class 1’s Instructor Response score would be 2.5 (compared to 2) if it were recalculated without factoring in the “clear criteria” indicator.
- Both students examined received a passing grade or “P” on all six assignments sampled. Students received the same grade for work of varied quality.
- The quality of the instructor’s feedback varied widely; scores for the “Instructor provides actionable feedback” indicator ranged from 1 to 5.

Class 1 Assignments: Discussion

In some cases, variations in instructor feedback may be related to variations in types of assignments. For example, it may be easier for an instructor to give “actionable” feedback on an assignment focused on designing classroom experiences than on an assignment focused on describing a pair of students, like the module 2 WikiProject, *Extending Student Profiles*.” The instructor’s reply to Student 1 for her module 2 project is:

“Great to learn more about Jorge and Ronan. This is going to be so helpful as we start designing our classrooms and short projects.”

The instructor’s feedback to Student 1’s work on the module 4 WikiProject is much more actionable. Among other questions, the assignment asks students to discuss “two things you could do to get a better idea of whether or not the [CELDT] score is an accurate measure.” The instructor writes:

“I appreciate the analysis of each score associated with students’ personalities, learning styles, and interests. With Vicente, I wonder how you might go about testing transfer and receptive vs. productive. Have you used

something like this in the past? If you haven't used something in the past, how might you go about testing these?"

Given that the module 4 assignment called for students to plan and consider future actions, it may have been more natural for the instructor to provide actionable feedback. However, in other cases, the quality of instructor feedback does not appear to be related to assignment design. For the module 7 WikiProject, Student 1 received feedback that was substantive and actionable:

"Can you elaborate a little bit on what about this type of research is authentic. You're getting there, but just to make it clear exactly which elements you think and why would be helpful for me. Also, do you have any suggestions here for improvement in making it more authentic? Thank you for your work!"

However, Student 2 received low-quality feedback for the same assignment:

"Such great questions posed and suggestions for the projects you've reviewed. You did a great job with being kind, helpful, and specific in your approach. Thank you for taking the time."

Here, it seems that the instructor's feedback may have been tailored to the quality of student work; student 2's project was longer, more detailed, and more carefully thought out than student 1's.

Although all student work sampled was fairly high-quality (student 1's average Student Response score was 4.2; student 2's score was 4.8), there was some variation, but the pass/fail grading system did not acknowledge any variation. Student 2 consistently turned in assignments that were longer and more detailed than his peers' work, but his grade did not reflect this; he earned the same "P" as student 1, who generally fulfilled assignment requirements but did not seem to put in as much time or effort.

Just as a discussion forum prompt can raise or lower the level of student discourse, so too can an assignment. For example, although the module 7 WikiProject was generally well designed (it made a complex task simple by breaking it down into a list of questions), the content of some of these questions sometimes brought the student dialogue down to a "back-patting" level. In fact, the last question of the survey explicitly invites "back-patting": "What is one final note of encouragement or genuine support you can offer to your colleagues?" Students follow directions, giving each other feedback that is enthusiastic but not critical or useful: "Can I be in your class? I would be so stoked to have a project like this to dive into!"

The module 6 WikiProject, Instructional Strategy Plan, was a strong assignment because it required students to explain their thinking and guided them in doing so. It asked students to annotate a project plan they created in a previous module with notes indicating the instructional strategies they planned to use to support English Learners, and provided them with a clear list of what to add:

1. Two instructional strategies that will help all EL students better understand and engage in the learning
2. Two strategies you will use to check for their understanding
3. Two strategies or supports designed with specific students in mind.

In order to fulfill the assignment, students had to apply their knowledge to a classroom setting and clearly explain their thinking. For example, student 2:

“EL strategy: To help students create an excellent public education piece, I would ensure a thorough brainstorming session. First I would organize centers where groups could visit pods where information was set out describing previous successful / innovative / famous etc. public awareness raising events. Once their imaginations were piqued by this exercise, a group brainstorming session to dredge the collective group mind for ideas would be carried out with each group having a large piece of paper, and doing a table version of chalk talk – all writing down their ideas for a few minutes on the paper. From here, they could discuss and eliminate ideas they have doubts about. Sharing with the group and gathering critique and tips to further refine the results of the brainstorms would be helpful.”

This project was not alone in using a list to clearly present instructions; many assignments used bulleted and numbered lists to give students a clear idea of what is expected of them and the steps they will need to take.

Class 2 Assignments: Findings

- Class 2 had medium to high scores in Assignment Design (3.7) and Student Response (4.3), but low scores in Instructor Response (1.9). These scores were very close to class 1’s scores.
- As was the case with class 1, the “clear criteria” indicator lowered class 2’s instructor response score; if it were recalculated without factoring in this indicator, it would be 2.3 (rather than 1.9).
- One of the students (student 3) examined received a passing grade or “P” on all six assignments sampled. The other student (student 4) received “P” grades on three assignments, while the grade boxes for her other three assignments were left blank. It is unclear what these blank spaces mean; in one of the instances, the instructor provided very positive feedback (“excellent job on identifying what the learning goals are for your students”) so it seems unlikely that the student failed the assignment. In the other two cases, the instructor did not leave any feedback on the assignment; it is possible she did not review the assignment.
- As was the case with instructor feedback in class 1, the quality of the class 2’s instructor feedback varied widely; scores for the “Instructor provides actionable feedback” indicator ranged from 1 to 5.

Class 2 Assignments: Discussion

As with class 1, variations in instructor feedback may be related to the quality of student work and the nature of the assignment. Class 2, taught by two instructors, introduced another potential reason for variations. While class 1’s instructor replied to 100% of student projects sampled, the instructors of class 2 failed to reply to 3 of the 12 projects sampled, giving them a reply rate of 75%.

From the replies sampled, the average reply quality for each class 2 instructor was similar, and the instructors often took the same approaches to responding to student work. For example, when responding to module 4 WikiProject assignments, both Instructor A and Instructor B drew from their professional teaching experience:

Instructor A: "I thought that your analysis of Sofia's high score as being a result of her intrinsic motivation was interesting because I have seen that occur with students when I have administered the CELDT in the past. Some students see it as a reflection of who they are as students, and it is those students who really want to "do well" on the test (despite efforts to explain to them that the CELDT is only one of many gauges of language proficiency)."

Instructor B: "Those inconsistencies you noticed with Djeyma happen quite often. The CELDT is given to all students whose parents indicated on their home language survey that a language other than English is spoken at home. Students are tested in the fall, results are available in the winter, and from there if the student scored high enough he/she can be redesignated. The EL coordinator must get a teacher recommendation, take a look at the student's grades from the previous year, as well as test scores from the ELA. But, all this to say the process is long, complicated and can be flawed. Looking at alternative forms is essential to try to gain understanding and figure out how to support our student."

The constant and evolving presence of imaginary EL students throughout the curriculum seemed to help motivate students and help them practice applying ideas to a classroom setting. Students started with a Creating Our Class WikiProject in module 1, where they created a pair of students, one EL and one native speaker. In module 2, they created Extended Student Profiles, and wrote vivid descriptions and backgrounds for each student. And throughout the class, these students were available as a tool when students needed to practice applying concepts.

In module 2's Extended Student Profile, student 3 wrote about her imagined EL student, Ivette, with a high level of intimacy:

"Ivette understands the expectations of her when she can see them written down or they are communicated in one-on-one settings. She works best in small group settings, separated from her friends, and given extended time to work on assignments and turn in work."

This familiarity with the specific needs of an individual EL student supported students as they worked their way through the modules. In module 6, students were asked to describe the instructional strategies they will implement in their 3-day projects; part of the assignment is describing how certain strategies will work for individual students. Student 3's familiarity with Ivette helps her give a clear, carefully reasoned answer:

"A strategy that would work well for Ivette is to provide her with specific guidance for the annotated bibliography such as resources like bibme.com as well as an outline or model of what an annotated bibliography looks like so she would be able to reference the model for her work, perhaps in a fill-in-the-blank fashion."

The addition of these imagined students to the curriculum contributed to high scores across the modules for the "Assignments assess student capacity to implement course knowledge and/or strategies within their own classrooms" indicator (4.3 average).

Comparison of 2015 Assignments to 2014 Assignments: Findings

- The 2015 Instructor Response scores (2 for class 1, 1.9 for class 2) were substantially lower than the corresponding 2014 score (3.6), while the other two scores were fairly similar. The 2015 Assignment Design score (3.7) was very close to the 2014 score (3.5), and the 2015 Student Response score was higher (4.6 for class 1, 4.3 for class 2) than the 2014 Student Response score (3.9).
- As in 2014, course assignments did not provide a clear rating system for high-quality work. This lack of a grading rubric was again a weakness that lowered the overall average Assignment Design score.
- On a related note, the instructors graded on a pass/fail basis as they did in 2014.

Comparison of 2015 Assignments to 2014 Assignments: Discussion

As in 2014, 2015 course assignments failed to provide a clear rating system for high-quality work, and the binary pass/fail grading system made it difficult to ascertain the instructor's use of clear criteria.

There was a slight increase in the Assignment Design score (3.5 to 3.7), and one factor may have been higher scores on the "Assignments assess student capacity to implement course knowledge and/or strategies within their own classrooms" indicator. As mentioned previously, the inclusion of imaginary EL students throughout the curriculum made it easy to add an aspect of classroom implementation to any assignment.

Like 2014's curriculum, 2015's curriculum included a final Presentation of Learning (POL), but the prompt was different. While the 2014 assignment presented a list of ten open-ended questions (for example, "Describe how you plan to establish an environment for learning in your classroom that supports multiple cultures and English learners"), the 2015 assignment was much more focused. Because of the way the 2015 assignments were structured around the imaginary students and the projects planned for them, the POL questions were able to assess a broad range of subject mastery by asking just five questions about the imagined students and their projects.

2015 assignments included more partner and group work than 2014 assignments. Except for the final module's POL, every 2015 WikiProject was a partner project, and the only individual assignments were Reflection writing prompts. While this gave 2015 students a great deal of experience working in teams, it may have made it more difficult for instructors to accurately assess individual student performance.

Survey Results

The Sample

Based in California, High Tech High (HTH) is a public charter school organization. With its cluster of schools spanning kindergarten through Grade 12, HTH provides a rich clinical context for educator training and is approved by the state to certify its own teachers. In 2014 and 2015, HTH offered online classes designed to fulfill California's requirement that pre-service preparation programs provide novice teachers with content to support English Language Learner students (ELs). At the end of the 2015 summer term, a link to an online survey (see Appendix B) almost identical to the one used with the 2014 summer class was uploaded to the HAIKU sites of the two 2015 classes. Students were asked to

complete the survey as their last task for the class, after they received instructor feedback on their final project. The response rates for the 24 students in the 2014 class and the 20 students in Class 2 (2015) were both 100%. Class 1 (2015) had a response rate of 89%; 16 of the 18 registered students responded. Given the substantial level of survey participation, we can be confident that the results reflect the opinions of all students taking the courses.

The Findings⁵

Novice Teachers' Certification Areas and Teaching Experience (Tables 1a – 1c)

- The 2015 classes had more than double the percentage of teachers at the elementary level than did the 2014 class, with Class 1 having 38% and Class 2 having 45%, compared to the 2014 class with only 17%.
- About 30% of the teachers in both 2015 classes were certified in Special Education but only 17% of the 2014 teachers held that certification.
- For novice teachers certified at the secondary level, Class 2 had a substantially higher percentage of Special Education teachers (55%) than did Class 1 or the 2014 class which both had 20%.
- Class 2 had a much lower percentage of secondary level novice teachers certified in the Humanities (27%) compared with Class 1 (60%) and the 2014 class (50%).
- In the 2014 class, none of the teachers had any teaching experience. Although to a large extent that was the case with the 2015 classes as well, a small group of the 2015 teachers taught in summer school in 2015. Only two students in Class 1 (13%) did so, far fewer than the 7 (35%) in Class 2.

Novice Teachers' Demographics (Tables 2a – 2e, 14 - 17)

- In contrast to the 2014 class that was split evenly between males and females, the majority of teachers were female in the 2015 classes, reaching 75% female in Class 2. That the teachers in the 2014 program were 50% male was unusual since that figure is considerably higher than the national proportion of male teachers in K-12 settings.
- As in 2014, the majority of 2015 novice teachers were non-Hispanic white, but the percentage of Hispanic/Latino teachers was higher in the 2015 classes. Teachers of color made up about 45% of the 2015 classes compared to 38% for the 2014 class.
- Class 2 is substantially younger⁶ (average age = 28 years) than both Class 1 and the 2014 class where the average age was about 33 years in each. Class 2 is also more homogeneous with regard to age than Class 1 and the 2014 class.
- The majority (68%) of the novice teachers in Class 2 are 30 and younger. In Class 1, half the teachers are in that age group. Only 38% of the 2014 teachers were 30 and younger.

Interpreting the Course Evaluations

Two issues should be considered when assessing the ratings for different courses. First, the mean of a scale being at or slightly above its midpoint does not reflect a satisfactory situation. Using the Course

⁵ Tables related to the Survey results may be found in Appendix B.

⁶ In order to evaluate the meaningfulness of the difference between two means, a conventional rule of thumb is to consider differences of about half a standard deviation in size as moderately important. Differences much smaller than the half a standard deviation benchmark are regarded as more trivial, while those considerably larger indicate a substantial effect.

Experience scales to illustrate, the midpoint (3) represents Undecided, so that a mean score of 3.4, for example, indicates sentiment somewhere between undecided and moderate agreement, a rather lukewarm endorsement of the experience. Mean ratings below 3 indicate a negative opinion.

Secondly, the demographic profiles of the novice teachers in the three classes (1 in 2014 and 2 in 2015), as well as their areas of certification were sufficiently dissimilar that attempting to untangle the possible effects of course attributes and participant characteristics must be undertaken with caution.

Finally, the fact that the teachers were rating their experiences through a course link raises the possibility that their responses may have been colored by their concern about confidentiality.

Course Experience Ratings (Figure 1, Tables 3 – 5, 13 - 17)

- On the Instructor Engagement scale, the virtually identical mean ratings (4.6) of the two 2015 classes were considerably higher than the 2014 class mean (4.1).
- Similar results were observed in the case of the Culture of Learning scale, where the 2015 classes each had a mean of 4.0 while the 2014 mean was 3.5.
- For the Course Design scale, the pattern of results was similar again. Here, too, the 2015 classes had similar means (about 4.4), substantially higher than the mean of the 2014 class (3.8).
- Of the three Course Experience scales, the average rating across the three programs was highest for the Instructor Engagement scale.

Effectiveness of Course Components (Tables 6 - 7b, 13 - 17)

- For all goals (learning course content, learning how to teach course content to students, and enabling the implementation of knowledge and/or strategies directly into teachers' classrooms), the components rated as most effective, on average across the three classes, were Readings, Videos, and Reflections/Module Reflections.⁷
- Discussion Boards also made the "most effective" list, but only for the 2015 classes. The 2014 class gave this component ratings that were a full standard deviation lower than those of the 2015 teachers.
- Although not as marked as the difference in Discussion Boards ratings, in general, the 2015 classes tended to rate the components more favorably than did the 2014 class. In addition to the Discussion Boards component, this was most apparent in the Individual Wiki Projects/Partner Team WikiProjects component and the Group Work/Partner Team Work components. The last is particularly noteworthy because the 2014 effectiveness ratings for Group Work averaged about 2.3 across the three goals. Not only was this the lowest effectiveness rating of any component in 2014, it was well below the scale midpoint of 3.
- There was a slight tendency for 2015 Class 1 to give higher ratings to some components than Class 2. This was most noticeable in the ratings for the Partner Team WikiProjects component and the Partner TeamWork component. In addition, Class 1 had a somewhat higher mean on the global Course Components Effectiveness scale (4.2) compared to Class 2 (3.9). Both were higher than the mean of the 2014 class (3.5).

Preparation Beliefs (Tables 8 - 11, 13 - 17)

⁷ As described earlier in Survey Components and Constructs, half of the components kept the same name in 2015 and half were renamed.

- HTH 2015 and 2014 classes rated their level of preparation similarly for many items. There were however some notable exceptions. One of the biggest differences observed was in the case of Item # 18 (Engage in planning and problem solving with colleagues) where the 2015 classes had substantially higher preparation scores than did the 2014 class. The 2015 classes also had meaningfully higher scores on Item # 8 (Relate classroom learning to the real world) and Item # 17 (Evaluate and reflect upon your practice to improve instruction). The 2015 classes had somewhat higher preparation scores on Item # 13 (Choose teaching strategies to meet different student needs).
- For some preparation items, Class 1 felt better prepared than did Class 2 and the 2014 class. Class 1's means for Item # 7 (Use instructional strategies that promote active student learning) and Item # 9 (Understand how students' social, emotional physical, and cognitive development influence learning) were substantially higher than the means of the other two classes.
- On Item # 11 (Teach in ways that support English language learners) Class 1's preparation ratings were somewhat higher than Class 2's and substantially higher than those of the 2014 class.
- With regard to Item # 11, 100% of the teachers in all three classes felt they were adequately prepared to teach in ways that support English language learners.
- For Technology Use Preparation, the 2015 classes reported slightly better preparation than did the 2014 class.

Efficacy Beliefs (Tables 12, 13 - 17)

- The Personal Teacher Efficacy (PTE) scores were similar for all three classes with an overall mean of 3.9. This is almost a full scale point above the scale mean of 3, indicating that the teachers had a fairly positive feeling about their own teaching efficacy.
- The General Teaching Efficacy (GTE) scores were also similar for all three classes with an overall mean of 2.5, indicating that the teachers had a fairly low level of concern about the effect of external factors on their teaching efficacy.

Correlations: Course Experience, Course Components Effectiveness, Preparation, Teacher Efficacy, and Suggested Revisions (Table 13)

- The more favorably teachers viewed their course experiences in terms of instructor engagement, culture of learning, and course design, the more positive their perceptions of course components effectiveness were. This relationship was strongest in the case of Culture of Learning where the correlation with Component Effectiveness was .74.
- Assessments of course components effectiveness were strongly related to teachers' perceptions of preparedness. The higher the effectiveness assessment, the more prepared the teachers felt.
- Personal teacher efficacy was meaningfully related to the course experience of culture of learning, and also related, more strongly, to views of course components effectiveness and how prepared teachers felt.
- General teacher efficacy was not meaningfully related to any of the other variables.

SubGroup Analyses

This section reports the results of analyses comparing different demographic and experience groups.

Sex Comparisons (Table 14)

- Ratings for males and females were similar except for Culture of Learning where the females had substantially higher ratings than males.

Age Comparisons (Table 15)

- There were no age differences observed.

Ethnicity Comparisons (Table 16)

- The teachers of color had more positive feelings about their teaching efficacy compared to the white teachers.

Comparisons between Teachers with and without Summer School Teaching Experience (Table 17)

- The teachers with summer school teaching experience gave higher ratings to Instructor Engagement and Culture of Learning than those without that experience.
- The teachers with summer school experience had a lower PTE mean than those who did not teach in summer school.

Discussion of Course Changes, Survey Findings, and Artifact Analyses

Changing the Course and Engaging the Faculty

In summer 2014, the partners launched Phase 1, an 8-week course that focused heavily on reading research and current publications on language acquisition theory designed to raise novice teachers' awareness of the issues involved in teaching English Learners. Comments from participating New York and California novices (e.g., "I now teach EL students and do not have resources from the course to help me because I did not get a solid grasp of how to apply the strategies shown in the videos or laid out in the readings.") raised important questions for program designers. Through the collection of these anecdotal data coupled with a rigorous comprehensive evaluation completed by a team based at New Visions (Trachtman, Koenigsberg, & Zheng, 2014), six key areas were identified in need of improvement. An online education consultant worked with one of the course instructors to design the following changes for implementation in Phase 2, the summer 2015 course. [Appendix A1 provides a description of both the 2014 and 2015 key objectives and learning goals for each module; detailed guides to each module for both years may be found in Appendix A2.]

1. From Groups to Partner Teams

- A. The Phase 1 course had encouraged group work in an effort to build a sense of community; however, by changing the groups each week and providing relatively little timely feedback to group participants, the novice teachers were not able to build their desired and desirable connections with peers.

- B. In response, in the Phase 2 course, instructors assigned 2-teacher partner teams to work together on a course-long project. Partner Teams remained together for the entire class and were encouraged to meet regularly by phone, Skype, or in person. In their required weekly reflections, novice teacher partners reported on their experiences, sharing confidentially with instructors their frustrations and achievements. When intervention was needed, the instructor worked with the specific Partner Team to facilitate a new communication process, helping the team to set clear assignment expectations and roles.
2. From Weekly Assignments to a Single OverArching Project
 - A. The Phase 1 course required weekly written assignments focused on the readings and research materials assigned that week. The strategy seemed to emphasize learning theory and the acquisition of new knowledge through the preparation of written summaries.
 - B. In the revision, the Phase 2 course modeled a project-based learning approach with students assigned a series of tasks that built on each other, culminating in the development of a 3-Day unit or set of lessons that participants could use with their students in the fall. Beginning with their invention of two fictitious English Learners in the first week, novice participants began to develop an understanding of important issues related to students' culture, families, and individual interests; they also learned about the types of tests that ELs would need to pass to demonstrate language proficiency. After learning specific instructional strategies, participants were asked to name and explain the specific strategies that would work best with their (fictitious) students. Finally, after spending time learning how to provide specific feedback, participant peers reviewed each other's work and offered constructive and actionable next steps.
 3. From Discussion Questions to Real Discussions
 - A. The Phase 1 course prompted participants with weekly discussion questions that related to research read and videos watched during the content portion of the week. In their postings they often summarized what they had read; peer responses to posts did not generally extend or deepen the conversation. Further, few discussions moved past the initial response posts.
 - B. The Phase 2 course revised the discussion prompts to focus participants on their own personal experiences with the weekly topic. For example, rather than reflecting on Stephen Krashen's Affective Filter Hypothesis, the prompt asked participants to share an uncomfortable moment when their own "affective filter" got in their way. The prompt was tweaked in the hope of inspiring lengthy and detail-rich posts that would encourage multi-participant dialogue. Instructors developed strategic "moves" for deepening discussions to facilitate the development of a dynamic learning community.
 4. From Abstract to Actionable
 - A. The Phase 1 course focused on the theory of language acquisition leaving participants to infer how best to implement the theory in their own classrooms. They were invited to watch videos of other teachers teaching English Learners and evaluate the observed instruction. The video

watching strategy reflected the course's implementation during the summer when the novices were not able to observe actual teaching at schools.

- B. The Phase 2 course required participants to dig past the theory by reviewing proven strategies and then deciding which strategies would work best for their specific students. By having novices "create" their own students at the beginning of the course, the project team believed the teachers would feel an important sense of responsibility and commitment to these students, and, vested in their success, would make curricular and instructional decisions based on their needs. While real students continued to remain out of sight, instructors had designed a process to mimic the approach used by experienced teachers to design effective instruction: begin by knowing your students well.

5. From Anonymity to Collaborative Engagement

- A. The Phase 1 course provided few opportunities for structured contact between students and instructors other than the feedback exchanged on assignments and instructor posts on discussion boards; while some students reached out to their instructors via email, the online delivery of the course appeared to limit interaction and connectedness.
- B. The Phase 2 course featured the same instructors working hard to be perceived as real people attentive to participants and their learning. The instructors posted self-made videos welcoming the participants and orienting them to the week's course of study. They posted pictures, brief bios, and hosted a Fun Things discussion thread to facilitate connections. The instructors were specifically trained in how to provide active feedback online, as they created an online presence that encouraged community. Through frequent postings that validated participants' learning, instructors strove to deepen the discussions by pushing past the initial post, inviting participants to explore extended applications of the concepts emphasized that week. The project team made changes in how discussion questions were worded, and sought to increase interaction throughout the course. These changes were designed to transform the class culture from one oriented toward book knowledge to one that mirrored a collegial conversation about developing and implementing research-based instructional strategies for educating ELs.

6. From Final Evaluation to Formative Data Collection

- A. The Phase 1 course asked instructors to collect weekly survey data but the data were not shared and discussed during the course. Instructors and the project team held 3 reflection conversations during the first summer, providing instructors with an opportunity to gain general insights into the students' experiences. The final comprehensive evaluation, completed in December 2014, provided actionable feedback but results from this evaluation were not available until after the course had ended.
- B. The Phase 2 course used weekly reflections submitted directly to the instructors as a way to check on participants' engagement with the online medium, instructors' pedagogical choices, and the content of the curriculum. The project consultant actively supported instructors during the course to troubleshoot issues as they arose and/or take note of items that could be strengthened for the future.

Course Experiences. All three Course Experience scales -- Instructor Engagement, Culture of Learning, and Course Design -- were rated more favorably by the two 2015 classes than by the 2014 class. To a large extent, the more positive 2015 perceptions are undoubtedly linked to the extensive curriculum revisions made in response to student feedback and program issues identified in the 2014 evaluation. One major change involved the Discussion Board. In 2015, the novice teachers were given a choice of questions each week instead of only one, and new prompts were designed to focus participants on the relationship between their own experiences and the discussion topic. In addition, instructors developed strategies to deepen discussions and increase participation. These revisions met with success as evidenced by the artifact analysis of the Discussion Board. The improvement in the novice teachers' perceptions of instructor engagement coupled with the higher artifact ratings of Discussion Board instructor feedback, as well as the more favorable student views of class culture paired with the improved artifact ratings of Discussion Board community building, lend validity to both sets of results. There was, however, a surprising finding in that the two 2015 classes had similar Instructor Engagement and Culture of Learning scores despite the fact that in the Discussion Board artifact ratings Class 1 had a higher Instructor Feedback score and a higher Community Building score compared to Class 2. Such incongruities sometimes occur in mixed methods research, and provide the researchers an opportunity to assess and perhaps better control some of the factors influencing the results. In this case, a possible explanation is that the self-report data collected via the survey captured participants' perceptions of how they experienced the course in areas including, but not limited to, the Discussion Board. For example, the Instructor Engagement scale on the survey contained items related to instructor response to emails and feedback on assignments along with items that tapped student-instructor interactions such as those on the Discussion Board. An additional factor that may have contributed to the unexpected discordance between survey results and artifact ratings is the conflation of frequency and quality in the Instructor Feedback criterion used for the artifact analysis. [Restructuring the criterion's indicators in the future may help paint a clearer picture of how students perceive those different facets of instructor feedback.]

Course Component Effectiveness. As in previous evaluations (Trachtman, Koenigsberg, & Zheng, 2014; Trachtman *et al.*, 2014), the Course Experience scales were found to be related to teachers' judgments of course component effectiveness. The generally more positive 2015 novice views of course component usefulness appear closely linked to the curriculum changes.

Discussion Boards. Additional evidence of the enhancement of the quality of the 2015 Discussion Boards discussed above was found in the analysis of the survey ratings of Course Components where the 2015 ratings for the Discussion Boards component were a full standard deviation higher than the 2014 ratings. This is quite an impressive improvement in teachers' views of the effectiveness of the discussion boards in helping them to learn course content, learn how to teach course content to students, and enabling them to implement knowledge and/or strategies directly into their classrooms.

Videos. The Videos component received some of the highest course component ratings from the novice teachers. There were a total of 22 new videos added in 2015 and 7 of the 8 modules received at least one of them. The Videos effectiveness ratings increased from 2014 to 2015, albeit modestly, and the improvement was most apparent for the goal of enabling teachers to implement knowledge and/or strategies into their classroom. This may be a reflection of the artifact analysis finding that the most successful videos were those that integrated aspects of classroom modeling with aspects of pedagogical theory.

Group Work/Partner Teams. In 2014, the novice teachers rated Group Work as the least effective course component across all goals (learning course content, learning how to teach course content to students, and enabling the implementation of knowledge and/or strategies directly into teachers' classrooms). Its average rating of 2.3 was well below the scale midpoint of 3. A typical student comment in 2014 was:

I found group assignments weren't very collaborative. "Make a presentation together" or "write a paragraph together" are activities that could be done individually. In most cases, one person wrote a part and slapped it together with a part someone else had wrote (this communicated via email drags out work an individual could do faster and more seamlessly).

The curriculum redesign called for 2-teacher partner teams that stayed together for the entire course. They were assigned a term-long project that actually required both members of the team to participate together. The average rating for the Partner Teams component in 2015 was strikingly higher compared to the Group Work component in 2014. There were not many student comments in 2015 but one Class 1 student did write the following, which was a far cry from the general sentiment in 2014:

Although I dreaded an online course, I actually felt that I learned a lot. The content blocks were extremely helpful, and I enjoyed working with a partner.

Class 1 had slightly more favorable perceptions of the Partner Teams component compared to Class 2. Since the assignments were the same, perhaps the teams tended to be more compatible in Class 1. More research is needed to determine optimal guidelines for team formation in online courses.

Wiki Projects. The introduction of the term-long project may also have been responsible for the substantial increase in the 2015 novice teachers' ratings of the Partner Team WikiProjects over their counterparts' 2014 ratings of the Individual Wiki Projects. Analysis of the Assignment artifact suggested that the presence of imaginary EL students throughout the curriculum helped motivate the novices and helped them practice applying concepts to a classroom setting. The familiarity with the specific needs of their individual EL students provided support to the novices as they worked on Wiki assignments and probably contributed to their recognition of the WikiProjects effectiveness.

Prepared to Teach. Further evidence that the change from group work to partner teams was successful came from the preparation beliefs held by the 2014 and 2015 classes. Although the Phase 1 and Phase 2 classes rated their level of preparation similarly in many areas, the most notable exception was the large difference between 2014 and 2015 responses to "Engage in planning and problem solving with colleagues." The higher rating from the 2015 class apparently reflected their more positive experience with the Partner Team component compared to the 2014 class's Group Work. Other preparation items on which the 2015 class reported feeling considerably more prepared also seemed related to the Phase 2 course revisions. For example, participants' responses to "Evaluate and reflect upon your practice to improve instruction" indicated more positive feelings of preparation in 2015 which may have been related to the novice teachers' experience with the revised reflection topics and the more conversational tone in which they were asked to think about them. Similarly, the more favorable 2015 responses to "Choose teaching strategies to meet different student needs" were likely enhanced by the

newly-designed course project mentioned above in which partner teams invented fictitious English learners in the first week, then developed an understanding of important issues related to students' culture, and, after learning specific instructional strategies, identified and explained the specific strategies that would work best with their (invented) students.

For Technology Use, the 2015 classes reported slightly better preparation than did the 2014 class. However, future research should pay attention to discovering the relationships between pre-service teachers' technological knowledge and their capacity to integrate technological, pedagogical and content knowledge, now called TPACK (Abbitt, 2011), when designing and implementing effective lessons and units. Further, it is likely that an additional relationship exists between teachers' "TPACK" and their self-efficacy beliefs.

Teacher Efficacy. Despite the important differences between the 2014 and 2015 classes in some preparation areas, all three classes had similar high Personal Teacher Efficacy (PTE) scores. In our VPSS research (Trachtman, Koenigsberg, Zheng, Cho, & Marlow, 2014), we noted the absence of an "online course effect" related to PTE scores. That is, even when teachers routinely gave low ratings to almost all aspects of particular courses, this "reverse halo effect" did not extend to the rating of PTE. Given that personal efficacy beliefs are probably strongly related to individual teacher characteristics and teaching experience, and therefore not greatly influenced by attitudes toward the course taken, this finding makes sense.

There were two instances where we observed differences in PTE scores. The group of 2015 novice teachers who were teaching in summer school at the same time they were taking the EL course had a lower PTE mean score than did their counterparts who were not doing any teaching. This is not an uncommon phenomenon. When first faced with the challenge of actually teaching real students, not just learning about how to teach them, the confidence new teachers have in their ability can be seriously shaken (Veenman, 1984). A second difference in PTE scores was observed between ethnic/racial groups where teachers of color had more positive beliefs about their teaching efficacy than did white teachers. Although we have seen this effect in some prior evaluations (Trachtman & Koenigsberg, 2003-2008), it has not been observed consistently. More research is needed to see exactly which racial/ethnic groups tend to feel this way. Aggregating a number of different groups into the "of color" category results in the composition of this category being different in different studies.

Class Size. Earlier, we reported on the 2015 novice teachers' more favorable perceptions of instructor engagement and proposed that changes to the discussion forums were likely responsible. However, another factor may also have played a part. The class sizes in 2015 (16 students in Class 1 and 20 students in Class 2) are smaller than the 24 students in 2014. Although there is considerable disagreement in the literature regarding what, exactly, is an optimum online class size (Orellana, 2006), the general wisdom suggests that larger classes increase instructor load leading to decreased instructor-student interaction. Given the strong relationship reported between the level of an online instructor's interaction with students and students' perceived learning, satisfaction, and sense of community (Baran, Correia, & Thompson, 2013), the smaller class sizes may very well have influenced the more favorable 2015 ratings. Support for this possibility comes from the fact that the same educator served as the 2014 class instructor as well as Class 1's instructor in 2015 where the Instructor Engagement scores were substantially higher. It is impossible to disentangle all the variables involved in this comparison including the revised curriculum and the online experience and content familiarity gained by the instructor in 2014, but the class size change needs to be considered.

HTH recognized the importance of class size and limited the two 2015 classes to 20 students each. Using a different analytic lens, the class size issue warrants further investigation because while smaller classes may be more desirable, along with economic constraints there are other reasons to not drop below a minimum class size. Particularly in an online class such as the EL course currently under review, it is important to have a sufficient number of students to interact effectively with one another. The course offered an excellent example of how too few students could detract from meaningful interaction. In reviewing Class 1's discussion forums we found that when only a small group of novices chose to participate in a particular forum, they did not receive substantial critical feedback from the handful of peers in that discussion, and, because of the small number of students participating, there was minimal peer-to-peer interaction resulting in weak community building.

Class Composition. In forming the two 2015 classes, HTH paid attention not only to class size but also took the novice teachers' credential routes into account. An equal number of single subject teachers, multiple subjects teachers, and special educators was assigned to each class. However, other teacher characteristics were not considered. As it turns out the classes differed considerably in age with Class 2 being a younger group. Class 2 was also more female. Despite these differences, the same syllabus was used for both classes and we did not see any evidence of attempts to differentiate instruction.

Concurrent Summer Activity. Unlike the novice teachers in the 2014 class who had no contact with students while taking the course, in the 2015 class 9 of the novices were teaching in summer school. The majority of them (7) were in Class 2. Knowing how challenging teaching is for a novice, we wonder how the concurrent teaching experience impacted their module participation. As mentioned earlier, review of the discussion forums indicated that Class 2 received lower ratings on community building. Their posts were also rated lower than Class 1's on critical thinking. Possibly, those ratings were influenced by the 35% of Class 2 who were teaching while taking the EL course.

In addition to those who were teaching in summer school, all of the EL novice teachers were required to participate in Odyssey, a summer in-service program for HTH interns that started while the EL course was still running. In a very positive review of the EL course, one student commented:

My only suggestion might be to begin a week earlier so that it doesn't overlap with Odyssey, if possible.

And another student suggested:

I would like to see more conscious integration between the Online EL class and the exercises of Odyssey. Seems like there could be a relationship productively between the two.

Concluding Comments

The 2014 and 2015 evaluations of the EL online learning modules reflect the commitment of the Schusterman Foundation to support practitioner learning and continuous improvement. Few course designers are given financial resources to iterate on their initial designs; fewer still benefit from a multi-year engagement by evaluators committed to studying the effects of curricular and pedagogical revisions. And so we conclude this report where we began, by celebrating the support of the Foundation, the two partnering organizations, High Tech High and New Visions for Public Schools, that incubated these ideas, the skill and commitment of course designers and instructors, and the

engagement of course participants who shared their experiences and gave us access to their insider knowledge.

We learned much during this second evaluation, including how online learning outcomes increase by making the learning experience more personal, by giving participants more choice and voice in their assignments, and by connecting learners to their peers with assignments that demand collaboration and joint work. We also came to understand that the pedagogical choices made by instructors using the *same* curriculum are consequential, and that their pattern of presence and engagement catalyzes their students' participation even in asynchronous online settings.

Our evaluations also raise several questions related to online class size, group formation within the course, the effect on novice teachers' learning when concurrently engaged with P-12 students, and the characteristics of the participating learners themselves. We look forward to continuing our inquiry into this field of study since we predict that it will grow exponentially as children, youth, and adults turn more frequently to technology to support their own learning.

A final thought: we would like to return to Malcolm Knowles' 5 adult learning theory assumptions and include a useful examination provided by ISpring⁸

1. Assumption #1 (Self-Concept)

Create learning experiences that offer minimum instruction and maximum autonomy.

A major aspect of designing adult eLearning courses is having an eLearning support system to offer guidance and help, while still giving the eLearning tools and resources they need to learn on their own terms. Adult learners acquire new information and build upon existing knowledge much more effectively if they are encouraged to explore a topic on their own. While younger learners might need to be guided through the learning process, mature learners will typically get more out of the experience if they are able to work autonomously. This might come in the form of self-study or group collaboration projects that involve minimal instructor intervention. ELearning professionals can also offer simulations, scenarios, or games without prefacing them with any information. As such, the adult learners will have to explore the activity on their own, and decide which benefits and information they can take away from the eLearning experience. With that being said, you'll also want to have an eLearning support system in place if they need to ask questions or to overcome any obstacles that may be hindering the eLearning process.

2. Assumption #2 (Adult Learner Experience)

Include a wide range of instructional design models and theories to appeal to varied experience levels and backgrounds.

Adult learners are more mature. Therefore, they have had more time to cultivate life experience and typically have a wider knowledge base. That means that you'll have to take into account that your adult learning audience is going to be more diverse, especially in terms of backgrounds, experience levels, and skill sets. While one adult learner may be well versed on how to search for resources online, another may have very little experience using the Internet. All of this must be considered when designing and developing your eLearning courses and eLearning activities. To appeal to different adult learners, it's often best to include a variety of different instructional design models and theories into your eLearning course or module. Survey your audience beforehand to determine any technical knowledge limitations they may have, as well as to assess their education levels. By

⁸ <https://www.ispringsolutions.com/blog/what-does-malcolm-knowles-know-about-adult-learning-theory/>

doing this, you will also be able to create eLearning experiences that are informative and engaging, rather than too challenging or boring. For instance, if your target audience includes a number of adult learners who may already know how to use multimedia, then including them in your eLearning course will boost its effectiveness and make it more immersive.

3. **Assumption #3 (Readiness to Learn)**

Utilize social media and online collaboration tools to tie learning to social development.

As we get older, we tend to gravitate more toward learning experiences that offer some sort of social development benefit. For example, we are often more ready to challenge ourselves with new learning opportunities if we know it will help us to fine tune skills that pertain to our social roles. From an eLearning professional point of view, social media and online collaboration tools can help you to incorporate this assumption into your deliverables. Create activities that encourage adult learners to use sites like LinkedIn and Google Plus as invaluable tools. This can help them to not only build their social network, but also collaborate with those who share the same interests.

4. **Assumption #4 (Orientation to Learning)**

Emphasize how the subject matter is going to solve problems that an adult learner regularly encounters.

Adult learners, essentially, need to know the why and when before they actively engage in the eLearning process. For example, they will not only want to know why they need to acquire specific information, but whether or not that information can be applied in the immediate future. Younger learners accept the fact that the knowledge they're acquiring today may not be used for quite some time. However, mature learners prefer to engage in eLearning experiences that help them to solve problems they encounter on a regular basis (in the here-and-now, rather than the future). So, you'll want to emphasize how the subject matter is going to help them solve problems immediately by offering real world examples and scenarios.

5. **Assumption #5 (Motivation to Learn)**

There must be a valid reason behind every eLearning course, module or educational activity.

Motivation is key with adult learners. As such, you will need to motivate them to learn by offering them a reason for every eLearning activity, assessment, or eLearning module they'll need to complete. eLearning professionals must explain why a particular eLearning course is being taught and why an adult learner must participate in an eLearning activity, in order for the overall eLearning experience to be meaningful and engaging. For example, if you are asking adult learners to complete a group collaboration task, you should also clearly define that this exercise will help them to build their team working and communication skills, even after the eLearning course is over. While younger learners won't need to necessarily know the reason why they are required to participate in an activity, adult learners need to feel as though they are more involved in the process of learning. Otherwise, they will question the validity of the eLearning course, given that they don't see any real need for acquiring the new knowledge or skills.

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Participant Survey

Part I. Your Course Taking Experiences

1. Course Experiences

Please indicate how strongly you agree or disagree with each of the following statements for the ELL MODULES you completed online.

Strongly Disagree 1	Moderately Disagree 2	Undecided 3	Moderately Agree 4	Strongly Agree 5
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- a. I felt comfortable using new technology (i.e., navigating HAIKU, browsing the Web, etc.).
- b. The Course Overview and Module Overview posted on HAIKU helped me understand the course requirements and grading standards.
- c. The HAIKU web site used in this course was well organized.
- d. In general, I found that using computer technology to learn is engaging.
- e. I enjoyed interacting with my classmates using HAIKU Discussion Boards.
- f. I felt comfortable sharing my opinions and ideas with my classmates.
- g. I felt comfortable sharing my opinions and ideas with my instructor(s).
- h. This course has made me sensitive to the social skills needed for online learning.
- i. The amount of work in this course was comparable to face-to-face courses on similar content.
- j. Overall, I was satisfied with my classmates' level of participation in this class.
- k. The expectations of me as a student were clearly stated and I fully understood my responsibilities in the course.
- l. I would recommend this course to other students.
- m. I was satisfied with accessing and navigating this course website.
- n. I was satisfied with the technology support response time and availability.
- o. My instructor(s) encouraged me to ask questions and provide feedback.
- p. While doing activities in this course, I felt like I was given choices and options.
- q. I didn't feel very good about the way my instructor(s) interacted with me.
- r. I felt that my instructor(s) was/were available to me online when I needed her/them.
- s. I enjoyed the activities where I interacted with my classmates.
- t. My instructor(s) provided timely responses to my emails.
- u. My instructor(s) conveyed confidence in my ability to do well in the course.
- v. My instructor(s) provided quality feedback on written assignments.
- w. I was satisfied with my performance in this class.

2. Course Component Effectiveness

Please rate the effectiveness of each course component on a scale of 1 (least effective) to 5 (most effective).

Course Component	HELPED ME LEARN COURSE CONTENT	HELPED ME LEARN HOW TO TEACH COURSE CONTENT TO MY STUDENTS	ENABLED ME TO IMPLEMENT KNOWLEDGE AND/OR STRATEGIES DIRECTLY INTO MY CLASSROOM
Readings			
Videos			
Partner Team WikiProjects			
Partner Team			
Prior Knowledge Thinking Prompts			
Module Reflections			
Discussion Boards			
Presentation of Learning			

Part II. Your Preparation to Teach English Language Learners

The next set of questions asks you to think about how prepared you felt to teach English Language Learners after completing the course.

How well prepared did you feel you were to do the following?

Very poorly prepared	Poorly prepared	Adequately prepared	Well prepared	Extremely well prepared
1	2	3	4	5

1. Teach subject matter concepts, knowledge, and skill in ways that enable students to learn.
2. Understand how different students in your classroom are learning.
3. Set challenging and appropriate expectations of learning and performance for students.
4. Help all students achieve high academic standards.
5. Plan instruction that builds on students' experiences, interests, and abilities.
6. Evaluate curriculum materials for their usefulness and appropriateness for students.
7. Use instructional strategies that promote active student learning.
8. Relate classroom learning to the real world.
9. Understand how students' social, emotional, physical, and cognitive development influence learning.
10. Identify students' special learning needs and/or difficulties.
11. Teach in ways that support English language Learners.
12. Choose teaching strategies for different instructional purposes.
13. Choose teaching strategies to meet different student needs.
14. Help students become self-motivated and self-directed.
15. Help students learn to think critically and solve problems.
16. Use multiple forms of assessment to determine students' strengths and needs
17. Evaluate and reflect upon your practice to improve instruction.
18. Engage in planning and problem solving with colleagues.
19. Use media and other technology to make the subject matter more accessible and meaningful to students.

Part III. Your beliefs about learning and teaching

Please indicate how strongly you agree or disagree with each statement below.

Strongly Disagree	Moderately Disagree	Undecided	Moderately Agree	Strongly Agree
1	2	3	4	5

1. When I really try, I can get through to most difficult students.
2. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.
3. The hours in my class have little influence on students compared to the influence of their home environment.
4. The amount that a student can learn is primarily related to family background.
5. The influences of a student's home experiences can be overcome by good teaching.
6. When a student does better than usual, many times it is because I exerted a little extra effort.
7. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.
8. If one of my students could not do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.
9. If a student masters a new math concept quickly, this might be because I knew the necessary steps in teaching that concept.
10. When the grades of my students improve it is usually because I found more effective teaching approaches.
11. When a student is having difficulty with an assignment, I am usually able to adjust it to his/her level.
12. When a student gets a better grade than he/she usually gets, it is usually because I found better ways of teaching that
13. A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement.
14. If students are not disciplined at home, they aren't likely to accept any discipline.
15. If parents would do more with their children, I could do more.
16. Even a teacher with good teaching abilities may not reach many students.

Part IV. Information about You

1. What is your California Teacher Certification Area? _____
(please check all that apply)

Multiple Subjects (K-8)
English
History/Social Science
Science
Math
Spanish
Art
Music
Special Education

2. Were you teaching in summer school this summer?
 - Yes
 - No

3. What is your age? _____

4. What is your sex?
 - Male
 - Female

5. What is your race/ethnicity? (please check the one option that best describes you)
 - American Indian or Alaska Native
 - Hawaiian or Other Pacific Islander
 - Asian or Asian American
 - Black or African American
 - Hispanic or Latino
 - Non-Hispanic White
 - Biracial

Part V. Additional Comments: Please share with us final thoughts about your experiences this summer with the ELL modules. Thank you for taking the time to participate in this survey.

Appendix A
Rubrics for Analysis of Course Artifacts (Videos, Discussion Boards, Assignments)

Videos

The Framework. The evaluation rubric for the instructional videos was derived from the 2013 Danielson framework and educational research on the effective use of instructional videos in the classroom (Canning-Wilson & Wallace 2000; Cruse 2011; Danielson 2013). After determining the relevant Danielson domains, we established 3 broad assessment criteria, constructed multiple indicators, and assessed each on a scale of 1-5, with 5 as the highest score. We then determined a total criterion score by averaging all individual indicator scores.

1. Designing coherent instruction
 - a. Video is designed to engage participants and advance them through the lesson
 - b. Video is appropriate to the learning needs of novice teachers
 - c. Video is aligned to the learning objectives of the lesson
2. Engaging viewers in understanding content
 - a. Video is short, thought-provoking, and well-focused
 - b. Video contains short chunks of information that can be easily absorbed
 - c. Video demonstrates the how-to and how-not-to of the lesson*
3. Video production and viewing
 - a. Video shows pictures or visuals directly related to the information or lesson being presented
 - b. Video has clear visuals and text that is easy to read
 - c. Video is well produced with good quality sound, imaging and acting

*Based on last year's evaluation, the team revised the criteria for Engaging viewers in understanding content, collapsing "Video instructor articulates the rationale of instructional choices" and "Video instructor reflects on their instructional choices" into a single indicator, "Video demonstrates the how-to and how-not-to of the lesson."

Discussion Boards

The Framework. We utilized the 2014 discussion forum evaluation rubric again. As described previously (Trachtman et al, 2014), the rubric was modified from criteria initially created by TeacherStream (TeacherStream 2009). Each forum was assessed on eight indicators across five criteria and rated on a scale of 1-5, with 5 representing the highest score. The average score for each criterion was calculated afterwards.

We also derived a **student participation percentage** based on the number of discussion threads started by participants compared to the total number of participants enrolled in the thread. A 100% participation percentage meant each participant created at least one new discussion thread in the forum. The **participation frequency of the course instructor** was determined from the number of instructor replies to participants' discussion threads.

1. Instructional Feedback
 - a. When students post questions, the instructor responds quickly and directly to the student's concerns
 - b. Instructor contributes by posting opinions, feedback, and insight beyond what is offered in the module presentations
2. Demonstration of Knowledge of Key Concepts
 - a. Students' discussion board postings relate to concepts from the module's learning objectives
 - b. Student posts add to the class's understanding of the topic
3. Community Building
 - a. Peer to peer interaction is frequent, with postings that lead to ongoing conversations
 - b. There is evidence of consensus building: students work together to create a product, construct new knowledge, and/or come to an agreement on some topic
4. Reflection

- a. Students share a synthesis of the learning experience, or describe how an aspect of the module's content has personal value to them
5. Critical Thinking
- a. Students pose questions, think through problems, and/or create connections between other students' postings

Assignments

The Framework. The assignments and associated student work products were assessed on ten indicators across three criteria. Each indicator was scored on a scale of 1-5, with 5 as the highest score. The evaluations were derived from student work and instructional practice indicators in the Danielson Framework (Danielson 2013).

1. Assignment Design
 - a. Assignments match learning expectations, and expectations are clearly defined for each assignment
 - b. Assignments include learning tasks that require high-level student thinking and invite students to explain their thinking
 - c. Assignments assess whether students have learned the corresponding course content
 - d. Assignments assess student capacity to implement course knowledge and/or strategies within their own classrooms
 - e. Assignment rating criteria are specified
2. Student Response to Assignment
 - a. Student work reflects their knowledge of key concepts
 - b. Student work clearly demonstrates how they arrived at conclusions via the use of evidence, reasoning, and/or problem solving
3. Instructor Response to Student Work
 - a. Instructor provides actionable feedback
 - b. Instructor ratings reflect the use of clear criteria and are applied fairly across a range of responses
 - c. Instructor feedback is substantive and identifies areas of student strength and areas of potential improvement

Survey Results

Table 1a Novice Teachers' Certification Area by Class

			Class			Total
			2015 Class 1	2015 Class 2	2014 Class	
Certification	Multiple Subjects (K-8)	Count	3	9	4	16
		% within Class	18.8%	45.0%	16.7%	26.7%
	English	Count	1	0	3	4
		% within Class	6.2%	0.0%	12.5%	6.7%
	History/Social Science	Count	1	0	1	2
		% within Class	6.2%	0.0%	4.2%	3.3%
	Science	Count	0	2	2	4
		% within Class	0.0%	10.0%	8.3%	6.7%
	Math	Count	2	0	3	5
		% within Class	12.5%	0.0%	12.5%	8.3%
	Spanish	Count	1	0	0	1
		% within Class	6.2%	0.0%	0.0%	1.7%

	Art	Count	3	1	4	8
		% within Class	18.8%	5.0%	16.7%	13.3%
	Music	Count	0	0	1	1
		% within Class	0.0%	0.0%	4.2%	1.7%
	Special Ed	Count	2	6	4	12
		% within Class	12.5%	30.0%	16.7%	20.0%
	Multiple Subjects (K-8), Special Ed	Count	3	0	0	3
		% within Class	18.8%	0.0%	0.0%	5.0%
	English, History/Social Science	Count	0	2	1	3
		% within Class	0.0%	10.0%	4.2%	5.0%
	Science, Math	Count	0	0	1	1
		% within Class	0.0%	0.0%	4.2%	1.7%
	Total	Count	16	20	24	60
		% within Class	100.0%	100.0%	100.0%	100.0%

Table 1b Secondary Level Novice Teachers' Certification Area (3 Disciplines) by Class

			Class			Total
			2015 Class 1	2015 Class 2	2014 Class	
Certification Area	Math/Sci	Count	2	2	6	10
		% within Class	20.0%	18.2%	30.0%	24.4%
	Humanities	Count	6	3	10	19
		% within Class	60.0%	27.3%	50.0%	46.3%
	Special Ed	Count	2	6	4	12
		% within Class	20.0%	54.5%	20.0%	29.3%
Total	Count	10	11	20	41	
	% within Class	100.0%	100.0%	100.0%	100.0%	

Table 1c Novice Teachers' Summer School Teaching Experience

			Class		Total
			2015 Class 1	2015 Class 2	
Taught in Summer School	Yes	Count	2	7	9
		% within Class	12.5%	35.0%	25.0%
	No	Count	14	13	27
		% within Class	87.5%	65.0%	75.0%
Total	Count	16	20	36	
	% within Class	100.0%	100.0%	100.0%	

Table 2a Novice Teachers' Sex by Class

			Class			Total
			2015 Class 1	2015 Class 2	2014 Class	
Sex	Male	Count	6	5	12	23
		% within Class	37.5%	25.0%	50.0%	38.3%
	Female	Count	10	15	12	37
		% within Class	62.5%	75.0%	50.0%	61.7%
Total	Count	16	20	24	60	
	% within Class	100.0%	100.0%	100.0%	100.0%	

Table 2b Novice Teachers' Race/Ethnicity by Class

			Class			Total
			2015 Class 1	2015 Class 2	2014 Class	
Ethnicity	American Indian or Alaska Native	Count	0	0	1	1
		% within Class	0.0%	0.0%	4.2%	1.7%
	Hawaiian or Other Pacific Islander	Count	1	1	0	2
		% within Class	6.2%	5.0%	0.0%	3.3%
	Asian or Asian American	Count	1	0	0	1
		% within Class	6.2%	0.0%	0.0%	1.7%
	Black or African American	Count	1	2	1	4
		% within Class	6.2%	10.0%	4.2%	6.7%
	Hispanic or Latino	Count	3	5	2	10
		% within Class	18.8%	25.0%	8.3%	16.7%
Non-Hispanic White	Count	9	11	15	35	
	% within Class	56.2%	55.0%	62.5%	58.3%	
Biracial	Count	1	1	5	7	
	% within Class	6.2%	5.0%	20.8%	11.7%	
Total		Count	16	20	24	60
		% within Class	100.0%	100.0%	100.0%	100.0%

Table 2c Novice Teachers' Race/Ethnicity (2 Groups) by Class

			Class			Total
			2015 Class 1	2015 Class 2	2014 Class	
Ethnicity 2	white	Count	9	11	15	35
		% within Class	56.2%	55.0%	62.5%	58.3%
	of color	Count	7	9	9	25
		% within Class	43.8%	45.0%	37.5%	41.7%
Total		Count	16	20	24	60
		% within Class	100.0%	100.0%	100.0%	100.0%

Table 2d Novice Teachers' Age by Class

Age	Class			
	2015 Class 1	2015 Class 2	2014 Class	Total
Mean	32.50	27.95	33.25	31.34
Median	30.50	26.00	32.00	30.00
Std. Deviation	7.694	5.049	8.538	7.601
Minimum	21	22	22	21
Maximum	49	40	56	56

Table 2e Novice Teachers' Age (2 Groups) by Class

			Class			Total
			2015 Class 1	2015 Class 2	2014 Class	
age	30 and under	Count	8	13	9	30
		% within Class	50.0%	68.4%	37.5%	50.8%
	Over 30	Count	8	6	15	29
		% within Class	50.0%	31.6%	62.5%	49.2%
Total		Count	16	19	24	59
		% within Class	100.0%	100.0%	100.0%	100.0%

Figure 1 Course Experience Scales

Three scales were constructed on the basis of a factor analysis of the Course Experience items.

Instructor Engagement (alpha reliability = .90)

My instructor(s) provided timely responses to my emails.

My instructor(s) conveyed confidence in my ability to do well in the course.

I felt that my instructor(s) was/were available to me online when I needed her/them.

My instructor(s) encouraged me to ask questions and provide feedback.

My instructor(s) provided quality feedback on written assignments.

While doing activities in this course, I felt like I was given choices and options.

I felt comfortable sharing my opinions and ideas with my instructor(s).

I was satisfied with my performance in this class.

Culture of Learning (alpha reliability = .77)

I enjoyed the activities where I interacted with my classmates.

I enjoyed interacting with my classmates using HAIKU Discussion Boards.

Overall, I was satisfied with my classmates' level of participation in this class.

I would recommend this course to other students.

This course has made me sensitive to the social skills needed for online learning.

The amount of work in this course was comparable to face-to-face courses on similar content.

In general, I found that using computer technology to learn is engaging.

I felt comfortable sharing my opinions and ideas with my classmates.

Course Design (alpha reliability = .78)

I felt comfortable using new technology (i.e., navigating HAIKU, browsing the Web, etc).

The HAIKU web site used in this course was well organized.

I was satisfied with accessing and navigating this course website.

The Course Overview and Module Overview posted on HAIKU helped me understand the course requirements and grading standards.

The expectations of me as a student were clearly stated and I fully understood my responsibilities in the course.

I was satisfied with the technology support response time and availability.

Table 3**Means and Standard Deviations of Instructor Engagement Scale for Different Classes****(Scale 1- 5: Strongly Disagree to Strongly Agree)**

	N	Mean	Std. Deviation
2015 Class 1	16	4.6250	.52042
2015 Class 2	20	4.6063	.41611
2014 Class	24	4.0677	.65211
Total	60	4.3958	.60286

Table 4**Means and Standard Deviations of Culture of Learning Scale for Different Classes****(Scale 1- 5: Strongly Disagree to Strongly Agree)**

	N	Mean	Std. Deviation
2015 Class 1	16	3.9922	.75893
2015 Class 2	20	3.9688	.61086
2014 Class	24	3.5208	.49955
Total	60	3.7958	.64439

Table 5

Means and Standard Deviations of Course Design Scale for Different Classes

(Scale 1- 5: Strongly Disagree to Strongly Agree)

	N	Mean	Std. Deviation
2015 Class 1	16	4.4583	.48113
2015 Class 2	20	4.3833	.51327
2014 Class	24	3.8403	.66753
Total	60	4.1861	.63193

Table 6
Comparison of Course Components in 2014 and 2015

2014	2015
Readings	Readings
Videos	Videos
Individual Wiki Projects	Partner Team WikiProjects
Group Work	Partner Teams
Prior Knowledge Assignment	Prior Knowledge Thinking Prompts
Reflections	Module Reflections
Discussion Boards	Discussion Boards
Presentation of Learning	Presentation of Learning

Table 7a

Effectiveness Means (and Standard Deviations) of Different Course Components in Helping Teachers Learn Course Content, Helping Teachers Learn How to Teach Course Content to Students, and Enabling Teachers to Implement Knowledge and/or Strategies Directly into Their Classrooms

(Scale 1- 5: Least Effective to Most Effective)

		Effectiveness in Helping Teachers to Learn Course Content		Effectiveness in Helping Teachers Learn how to Teach Course Content to Students		Effectiveness in Enabling Teachers to Implement Knowledge and/or Strategies Directly into Their Classrooms	
		Mean	SD	Mean	SD	Mean	SD
Readings	2015 CLASS 1	4.44	.629	4.19	.750	4.50	.632
	2015 CLASS 2	4.30	.979	4.05	.945	4.10	1.165
	2014 CLASS	4.08	.654	3.88	.797	3.88	.850
	Total	4.25	.773	4.02	.833	4.12	.940
Videos	2015 CLASS 1	4.44	.727	4.38	.719	4.44	.629
	2015 CLASS 2	4.45	.887	4.25	.967	4.20	.951
	2014 CLASS	4.13	.680	4.08	.717	3.96	.751
	Total	4.32	.770	4.22	.804	4.17	.806
Wiki Projects [Partner Team	2015 CLASS 1	4.38	.885	4.38	.806	4.50	.730
	2015 CLASS 2	3.90	1.119	3.90	1.071	4.05	1.050

Projects in 2015] [Individual in 2014]	2014 CLASS	3.33	1.167	3.33	1.049	3.29	1.042
	Total	3.80	1.147	3.80	1.070	3.87	1.081
Partner Team (2015) Group Work (2014)	2015 CLASS 1	4.06	.929	4.13	.957	4.13	.885
	2015 CLASS 2	3.55	1.276	3.55	1.234	3.65	1.182
	2014 CLASS	2.25	1.113	2.33	1.129	2.42	1.349
	Total	3.17	1.355	3.22	1.342	3.28	1.379
Prior Knowledge Thinking Prompts (2015) Prior Knowledge Assignments (2014)	2015 CLASS 1	4.25	.856	4.13	.885	4.19	.834
	2015 CLASS 2	3.75	1.020	3.75	1.118	3.80	1.152
	2014 CLASS	3.67	1.049	3.67	1.239	3.58	1.213
	Total	3.85	1.005	3.82	1.112	3.82	1.112
Module Reflections (2015) Reflections (2014)	2015 CLASS 1	4.13	.806	4.25	.775	4.06	.772
	2015 CLASS 2	4.00	1.076	3.90	1.021	4.00	.973
	2014 CLASS	4.08	.776	3.96	.955	3.92	.929
	Total	4.07	.880	4.02	.930	3.98	.892
Discussion Boards	2015 CLASS 1	4.38	.957	4.38	.806	4.44	.814
	2015 CLASS 2	4.35	.745	4.20	.894	4.20	.834
	2014 CLASS	3.38	.970	3.25	1.113	3.38	1.056
	Total	3.97	1.008	3.87	1.081	3.93	1.023
Presentation of Learning	2015 CLASS 1	3.88	.957	3.88	.885	3.94	.929
	2015 CLASS 2	3.50	1.147	3.45	1.191	3.55	1.234
	2014 CLASS	3.25	1.189	3.38	1.135	3.46	1.141
	Total	3.50	1.127	3.53	1.096	3.62	1.121

Table 7b**Means and Standard Deviations of Course Components Effectiveness Scale for Different Classes****(Scale 1 -5: Least Effective to Most Effective)**

	N	Mean	Std. Deviation
2015 Class 1	16	4.2422	.63451
2015 Class 2	20	3.9333	.68923
2014 Class	24	3.4965	.60816
Total	60	3.8410	.70308

Note. The global Course Components Effectiveness scale had an alpha reliability of .95.

Table 8**Means and Standard Deviations of Preparation Items for Different Classes****(Scale 1- 5: Very Poorly Prepared to Extremely Well Prepared)**

Preparation Items	2015 Class 1		2015 Class 2		2014 Class	
	Mean	SD	Mean	SD	Mean	SD
1. Teach subject matter concepts, knowledge, and skills in ways that enable students to learn.	4.25	.683	4.05	.759	4.08	.584
2. Understand how different students in your classroom are learning.	4.50	.632	4.35	.587	4.25	.676
3. Set challenging and appropriate expectations of learning and performance for students.	4.44	.629	4.10	.912	3.83	.761
4. Help all students achieve high academic standards.	4.38	.806	4.15	.933	3.96	.624
5. Plan instruction that builds on students' experiences,	4.50	.632	4.30	1.081	4.21	.658

interests, and abilities.						
6. Evaluate curriculum materials for their usefulness and appropriateness for your students.	4.19	.655	4.15	.745	4.21	.721
7. Use instructional strategies that promote active student learning.	4.69	.602	4.25	.910	4.17	.816
8. Relate classroom learning to the real world.	4.56	.727	4.35	.745	4.08	.717
9. Understand how students' social, emotional, physical, and cognitive development influence learning.	4.56	.629	4.05	1.050	4.13	.680
10. Identify students' special learning needs and/or difficulties.	4.13	.719	4.15	.988	4.00	.659
11. Teach in ways that support English language learners.	4.50	.730	4.20	.616	4.08	.717
12. Choose teaching strategies for different instructional purposes.	4.37	.719	4.20	.616	4.00	.722
13. Choose teaching strategies to meet different student needs.	4.38	.619	4.25	.550	4.00	.722
14. Help students become self-motivated and self-directed.	3.94	.772	4.10	.852	3.71	1.160
15. Help students learn to think critically and solve problems.	4.13	.806	4.20	.834	3.71	1.083
16. Use multiple forms of assessment to determine students' strengths and needs (e.g., observation, portfolios)	4.31	.873	4.05	.945	3.71	1.042
17. Evaluate and reflect upon your practice to improve instruction.	4.50	.632	4.35	.671	3.92	.974
18. Engage in planning and problem solving with colleagues.	4.50	.730	4.45	.605	4.00	.933
19. Use media and other technology to create learning experiences that make the subject matter accessible and meaningful to students.	4.25	.683	4.30	.801	3.92	.929

Table 9
Means and Standard Deviations of Preparation Scale for Different Classes

(Scale 1- 5: Very Poorly Prepared to Extremely Well Prepared)

	N	Mean	Std. Deviation
2015 Class 1	16	4.3717	.57317
2015 Class 2	20	4.2105	.65848
2014 Class	24	3.9978	.58987
Total	60	4.1684	.61842

The global Preparation scale had an alpha reliability of .96.

Table 10

Number and Percentage of Teachers in Different Classes Reporting Adequate Preparation for Each Preparation Item

Preparation Items	2015 Class 1		2015 Class 2		2014 Class	
	N	%	N	%	N	%
1. Teach subject matter concepts, knowledge, and skills in ways that enable students to learn.	16	100.0%	19	95.0%	24	100.0%
2. Understand how different students in your classroom are learning.	16	100.0%	20	100.0%	24	100.0%
3. Set challenging and appropriate expectations of learning and performance for students.	16	100.0%	19	95.0%	23	95.8%
4. Help all students achieve high academic standards.	16	100.0%	18	90.0%	24	100.0%

5. Plan instruction that builds on students' experiences, interests, and abilities.	16	100.0%	18	90.0%	24	100.0%
6. Evaluate curriculum materials for their usefulness and appropriateness for your students.	16	100.0%	19	95.0%	23	95.8%
7. Use instructional strategies that promote active student learning.	16	100.0%	19	95.0%	23	95.8%
8. Relate classroom learning to the real world.	16	100.0%	19	95.0%	24	100.0%
9. Understand how students' social, emotional, physical, and cognitive development influence learning.	16	100.0%	19	95.0%	24	100.0%
10. Identify students' special learning needs and/or difficulties.	16	100.0%	18	90.0%	24	100.0%
11. Teach in ways that support English language learners.	16	100.0%	20	100.0%	24	100.0%
12. Choose teaching strategies for different instructional purposes.	16	100.0%	20	100.0%	24	100.0%
13. Choose teaching strategies to meet different student needs.	16	100.0%	20	100.0%	23	95.8%
14. Help students become self-motivated and self-directed.	16	100.0%	19	95.0%	21	87.5%
15. Help students learn to think critically and solve problems.	16	100.0%	19	95.0%	21	87.5%
16. Use multiple forms of assessment to determine students' strengths and needs (e.g., observation, portfolios)	15	93.8%	18	90.0%	21	87.5%
17. Evaluate and reflect upon your practice to improve instruction.	16	100.0%	20	100.0%	22	91.7%
18. Engage in planning and problem solving with colleagues.	16	100.0%	20	100.0%	23	95.8%
19. Use media and other technology to create learning experiences that make the subject matter accessible and meaningful to students.	16	100.0%	19	95.0%	23	95.8%

Table 11
Means and Standard Deviations of Technology Use Preparation for Different Programs

(Scale 1- 5: Very Poorly Prepared to Extremely Well Prepared)

2015 Class 1		2015 Class 2		2014 Class	
Mean	SD	Mean	SD	Mean	SD
4.25	.683	4.30	.801	3.92	.929

Figure 2 Self-Efficacy Scales

Personal Teacher Efficacy [PTE] (alpha reliability = .86)

If a student masters a new math concept quickly, this might be because I knew the necessary steps in teaching that concept.

When the grades of my students improve it is usually because I found more effective teaching approaches.

When I really try, I can get through to most difficult students.

If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.

When a student does better than usual, many times it is because I exerted a little extra effort.

If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.

If one of my students could not do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.

When a student is having difficulty with an assignment, I am usually able to adjust it to his/her level.

When a student gets a better grade than he/she usually gets, it is usually because I found better ways of reaching that student.

General Teacher Efficacy [GTE] (alpha reliability = .71)

A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement.

If students are not disciplined at home, they aren't likely to accept any discipline.

The hours in my class have little influence on students compared to the influence of their home environment.

The amount that a student can learn is primarily related to family background.

The influences of a student's home experiences can be overcome by good teaching (reverse coded).

If parents would do more with their children, I could do more.

Even a teacher with good teaching abilities may not reach many students.

Table 12

Means and Standard Deviations for Self-Efficacy

(Scale 1- 5: Strongly Disagree to Strongly Agree)

PTE			
Class	N	Mean	Std. Deviation
2015 Class 1	16	3.9861	.52411
2015 Class 2	20	3.9611	.53745
2014 Class	24	3.8056	.63131
Total	60	3.9056	.57017

GTE			
Class	N	Mean	Std. Deviation
2015 Class 1	16	2.5268	.64885
2015 Class 2	20	2.5071	.77899
2014 Class	24	2.4881	.53438
Total	60	2.5048	.64344

Table 13

Correlations: Course Experience, Course Components Effectiveness, Preparation, and Teacher Efficacy

	Instructor Engagement	Culture of Learning	Course Design	Component Effectiveness	Preparation	Technology Preparation	PTE	GTE
Instructor Engagement	1	.535**	.617**	.479**	.480**	.302*	.250	-.183
Culture of Learning	.535**	1	.501**	.736**	.591**	.537**	.266*	-.116
Course Design	.617**	.501**	1	.467**	.470**	.344**	.244	-.052
Component Effectiveness	.479**	.736**	.467**	1	.723**	.618**	.389**	-.063

Preparation		.591**	.470**	.723**	1	.647**	.548**	-.006
	.480**							
Technology Preparation		.537**	.344**	.618**	.647**	1	.396**	-.078
	.302*							
PTE		.266*	.244	.389**	.548**	.396**	1	-.147
	.250							
GTE		-.116	-.052	-.063	-.006	-.078	-.147	1
	-.183							
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

Table 14**Sex Comparisons on Ratings of Course Experience, Course Components Effectiveness, Preparation, and Teacher Efficacy**

	Sex	N	Mean	Std. Deviation
Instructor Engagement	Male	23	4.3098	.54208
	Female	37	4.4493	.63905
Culture of Learning	Male	23	3.5870	.68094
	Female	37	3.9257	.59326
Course Design	Male	23	4.0145	.69252
	Female	37	4.2928	.57522
Component Effectiveness	Male	23	3.7536	.70888
	Female	37	3.8953	.70366
Preparation	Male	23	4.2059	.61130
	Female	37	4.1451	.63004
Technology Preparation	Male	23	4.22	.671
	Female	37	4.08	.924
PTE	Male	23	3.8551	.61813
	Female	37	3.9369	.54467
GTE	Male	23	2.4348	.63520
	Female	37	2.5483	.65337

Table 15**Age Comparisons (Two Age Groups) on Ratings of Course Experience, Course Components Effectiveness, Preparation, and Teacher Efficacy**

	Age	N	Mean	Std. Deviation
Instructor Engagement	30 and under	30	4.4458	.61121
	over 30	29	4.3578	.60755
Culture of Learning	30 and under	30	3.7750	.67706
	over 30	29	3.8147	.63177
Course Design	30 and under	30	4.1722	.62588
	over 30	29	4.2069	.65867
Component Effectiveness	30 and under	30	3.8972	.67058
	over 30	29	3.7486	.72695
Preparation	30 and under	30	4.1544	.64858
	over 30	29	4.1887	.60706
Technology Preparation	30 and under	30	4.20	.714
	over 30	29	4.07	.961
PTE	30 and under	30	3.9667	.58805
	over 30	29	3.8352	.56236
GTE	30 and under	30	2.5714	.67320
	over 30	29	2.3941	.57734

Table 16**Ethnicity Comparisons (Two Groups) on Ratings of Course Experience, Course Components Effectiveness, Preparation, and Teacher Efficacy**

	Ethnicity	N	Mean	Std. Deviation
Instructor Engagement	white	35	4.3143	.66447
	of color	25	4.5100	.49466
Culture of Learning	white	35	3.7571	.69129
	of color	25	3.8500	.58184
Course Design	white	35	4.1429	.66192
	of color	25	4.2467	.59535
Component Effectiveness	white	35	3.7798	.72723
	of color	25	3.9267	.67296
Preparation	white	35	4.1579	.64574
	of color	25	4.1832	.59081
Technology Preparation	white	35	4.09	.887
	of color	25	4.20	.764
PTE	white	35	3.7841	.55813
	of color	25	4.0756	.55344
GTE	white	35	2.4898	.56645
	of color	25	2.5257	.74997

Table 17 Comparisons on Ratings of Course Experience, Course Components Effectiveness, Preparation, and Teacher Efficacy between Teachers with and without Summer School Teaching Experience

	Taught in Summer School	N	Mean	Std. Deviation
Instructor Engagement	Yes	9	4.8611	.11600
	No	27	4.5324	.50071
Culture of Learning	Yes	9	4.2917	.44194
	No	27	3.8750	.70711
Course Design	Yes	9	4.4259	.54078
	No	27	4.4136	.48782
Component Effectiveness	Yes	9	3.9722	.64550
	No	27	4.1034	.69235
Preparation	Yes	9	4.4269	.81852
	No	27	4.2339	.54722
Technology Preparation	Yes	9	4.44	.726
	No	27	4.22	.751
PTE	Yes	9	3.7654	.53990
	No	27	4.0412	.51024
GTE	Yes	9	2.6667	.42258
	No	27	2.4656	.78805