PROJECT 24
PLANNING FOR PROGRESS

Expert Perspectives: Future of Teacher Preparation in the Digital Age

June 2013

This is the first in the Alliance for Excellent Education's series of expert perspectives on current, relevant issues that are evolving as the education system transitions to high-quality digital learning.

As education systems strive to meet the needs of individual students and ensure that they are prepared for college and a career, they are quickly recognizing the importance of the preparedness of teachers. While this includes professional learning opportunities for in-service teachers, districts and schools welcome many new educators each year from traditional and nontraditional teacher-preparation programs and pathways.

Similar to districts that are working to set and meet higher standards for students and maximize the potential of digital learning for instruction, teacher-preparation programs must evolve to ensure that teacher candidates have a deep understanding of pedagogy and curriculum to personalize learning, utilize data and assessments effectively, and incorporate digital learning as an integral part of their instructional strategies.

Several programs in the United States are beginning to demonstrate what is possible with teacher preparation, but in many of these cases, teacher preparation has simply perpetuated the status quo.

Building on two Alliance webinars—held December 11, 2012 and March 20, 2013—this document shares expert perspectives on teacher-preparation programs in the digital age, including advice for prospective teachers, transitioning to a learner-centered instructional model, state certification requirements, and the need for qualified teachers to support English language learners. Questions addressed include:

- **What advice would you give to a student hoping to become a teacher or a career switcher interested in a teaching career?**
- **In terms of legislation and certification, what can state policymakers do to help improve teacher-preparation programs and the connection to the needs of districts?**
- **What do you think is being done in college and university teacher-preparation programs to ensure future teachers know how to create a learner-centered instructional model in their classroom that is driven by high-quality digital learning and the effective use of technology?**
- **How can the K–12 and higher education systems collaborate to ensure that teacher candidates can transition seamlessly from higher education institutions into a learner-centered classroom where personalized learning for each student includes rigorous content delivered through technology in a collaborative environment?**
- **When it comes to teacher preparation, there are "traditional" and "alternative" routes to certification. Should teacher-preparation programs be different for each of the two groups of teacher candidates?**
- **It seems as though institutions of higher education are often playing catch-up, in that they are constantly reacting to new policies and practices in K–12 education by integrating them into existing structures. What concrete steps can be taken now to get ahead of the curve in this area?**
- **How can advances in teacher preparation / technology integration help address the urgent need for qualified teachers to support English language learners?**

The Alliance is pleased to present "from the field" views of the following experts as they answer questions about teacher-preparation programs in the digital age:

- **Dr. Barnett Berry**, president and chief executive officer, *Center for Teaching Quality*
- **Dr. Tom Carroll**, president, *National Commission on Teaching and America's Future*
- **Dr. Charlie Coble**, cofounder and partner, *Teacher Preparation Analytics*
- **Ms. Sharon Robinson**, president, American Association of Colleges for Teacher Education
- **Dr. Lynne Schrum**, dean, *West Virginia University College of Education and Human Services*
- **Dr. Ronald Thorpe**, president and chief executive officer, *National Board for Professional Teaching Standards*
- **Dr. Mary Ann Wolf** , president, *WolfEd*

What advice would you give to a student hoping to become a teacher or a career switcher interested in a teaching career?

Dr. Berry: I would look for a program that offers serious clinical preparation, with assurances that master teachers have the time and support to mentor and as well as coteach in an internship. I would look for a program that pays attention to the differences in preparing young college students versus more mature, experienced adults who have already had other careers. And if you are a career switcher, look for a program that pays attention to whether you have experience working with children or teenagers—or not.

Dr. Coble: I would tell them to follow their passion. If they want to teach, they should follow that dream. I would also encourage a student or career switcher to think about what age level they think they prefer to work with (elementary, middle school, or high school), what disciplinary strengths they have, and what kinds of students they want to teach. Unfortunately, we have large numbers of poor and underperforming students who need effective teachers. Those students may be a particular "calling" to a person considering teaching.

Dr. Carroll: Prospective teachers should get to know the community in which they will work, look for a clinical experience in the preparation, and develop a sense of personal and professional resiliency in order to direct and support continuous growth in the field. Commit to having a growth mindset about teaching as a lifelong career with many opportunities for continued development and new experiences along the way.

Ms. Robinson: There are several options for fulfilling the requirements for teacher licensure. Students who are undergraduates should select a program that has the most extensive clinical component (number of hours in actual schools). Others interested should find the program that is most aligned with other life priorities that will impact their ability to complete the program. Some of the residency programs provide stipends for students during the residency. Most important is the clinical component; select the program with the most rigorous clinical component.

Dr. Schrum: Individuals thinking about a career as an educator should have a variety of opportunities to figure out if this is a good path for them. A challenge for potential educators is the current abundance of news and political statements critical of education and teachers; it would be important to counter that narrative with authentic information. They should be encouraged to visit schools, informal learning places, and other ways to shadow educators. They need to be encouraged to write down their questions and be able to get them answered. This is done typically in "Introduction to Education" types of classes, but that can be expanded by having stories of what educators' lives are like, with making sessions such as "Think You Want to Be a Teacher?" available.

For career switchers, we need to consider what it might take to help them get on a pathway to being teachers. In some states, there is a formal program called Career Switcher; in this program, potential teachers must have degrees in what they want to teach, experience in practicing their profession, and then they may take a few classes but complete their internships as teachers with a lot of support.

Clearly these programs work better in hard-to-staff content areas. I used to work with such a program and many of these individuals had successful careers but emotionally, they felt like they were not giving back to their communities and now wanted to do more.

In terms of legislation and certification, what can state policymakers do to help improve teacher-preparation programs and the connection to the needs of districts?

Dr. Berry: That is an easy one. The first thing is that states need to value teacher leadership and promote the cultivation of classroom experts who lead reform as well as teach students. A special certification, and incentives for teachers serving in hybrid roles, will go a long way in spreading pedagogical expertise and dramatically improving student achievement.

Dr. Coble: [State policymakers] can do a lot, primarily provide a competitive salary structure that invites and makes it more possible for talented people to prepare for a career in teaching. Along with that action, they can also encourage licensure standards to be set high.

However, just setting high standards and not providing incentives to attract people who can meet those standards is a losing formula. Legislators can also fund university-school teacher-preparation partnerships that assure well-sequenced and well-supervised clinical experiences for teacher candidates.

Dr. Carroll: Policymakers need to listen to teacher preparation faculty and other experts about how to best address local needs through teacher-preparation clinical experiences, and incentives (loan forgiveness, for instance) to teach in high-need areas (including urban and rural hard-to-staff schools). Policymakers should support evidence-based innovations in teacher preparation and provide resources that encourage research on innovations in preparation that strongly tie to teacher effectiveness and resiliency in the profession.

Ms. Robinson: Ultimately, certification systems need to become performance-based. We can no longer rely solely on multiple-choice and selected response tests to determine a person's readiness to teach. We need aspiring teachers and in-service teachers to demonstrate their ability to manage classrooms, develop lesson plans, teach diverse students, create, implement, and analyze assessments, etc.

The American Association of Colleges for Teacher Education (AACTE), in collaboration with Stanford University and Pearson, have created such a performance assessment—edTPA—for those preparing to teach. This assessment was designed by teacher educators, teachers, and school principals. It is scored by national panels of teachers and teacher educators who are trained to apply specific rubrics designating various levels of competence.

This assessment represents the entry standard for novice teachers indicating that they *know* how to teach. Several states are using edTPA as a requirement in their program approval and individual licensure processes.

Dr. Schrum: I love this question because it really goes straight to the appropriate body where change can happen systemically. In general, the United States is one of the few countries that does not have a well-articulated plan to find, prepare, and support an educational force of high-caliber individuals to

focus on the next generation of learners. The first task is to encourage the nation's best and brightest young people and career switchers to enter the profession. To accomplish this, certification might include credit for prior life experiences, differential pathways into the profession, and new ways to measure effectiveness.

Most schools are in need of mathematics and science teachers but little is done to really lure those with these skills and knowledge into the classroom. I would like to see successful educators be tied to effectiveness rather than to time in the classroom. I would like to see exceptional practitioners working more closely with teacher-prep programs to help teacher candidates see the ways in which theory and practice actually blend, rather than compete.

Legislation could return to the idea of rewarding teachers by reducing university loans for each successful year of teaching. Many states now have multiple "endorsements" that are added to teacher certification, but not many have such an endorsement for teacher leadership, which would be an excellent model.

Finally, I would love to see teachers not earn a full certification until they have taught successfully for two years, during which teacher-preparation programs and school districts work together to support the new teachers. And teachers need renewal that is authentic and valuable, rather than "seat time" in very weak professional development programs. These need to be tied directly to what teachers need to know.

As an example, many states have moved to an endorsement requirement in order to teach Advanced Placement classes and that endorsement needs to be renewed every two years. That model could be replicated for a variety of other teaching activities.

What do you think is being done in college and university teacher-preparation programs to ensure that future teachers know how to create a learner-centered instructional model in their classroom that is driven by high-quality digital learning and the effective use of technology?

Dr. Berry: There is a lot being done—the problem is that it is not well known. The University of Wisconsin–Madison prepares future teachers to draw on edugames to teach their students. West Virginia University and the University of Central Florida (and about 18 other colleges) are preparing future teachers with avatars to offer them a chance to learn about teaching and managing classrooms in contexts different from their own locales. The Gary and Jerri-Ann Jacobs High Tech High charter school has its own school-embedded teacher-prep program with a tight focus on digital, project-based learning.

I would look to the AACTE for other examples as well. Unfortunately, there are lots of short-cut alternative certification programs that completely ignore preparation for digital teaching and learning.

Dr. Coble: Two things are necessary. First, the disciplinary and pedagogical faculties both have to model effective uses of instructional technology and digital learning on campus. Second, in the selection of clinical sites for teacher candidates, attention has to be devoted to how teachers in those schools are applying learner-centered instructional models.

Dr. Carroll: The National Commission on Teaching and America's Future's (NCTAF's) higher education partners are doing a lot to ensure that their future teachers are prepared to teach in learner-centered, technology-rich environments. NCTAF's Teachers Learning in Networked Communities (TLINC) partners, for instance, are seeking funds and additional partners to continue to provide training, online courses, and resources for teacher education faculty who are modeling and teaching strategies that help future teachers be

more resilient and persistent in the profession by developing Personal Learning Networks—powered in many cases by mobile devices—that empower future teachers to develop a network of resources that help them be successful teachers (including online communities of practice, digital courses, apps, video libraries, etc.).

Ms. Robinson: AACTE's data indicates that use of technology in teacher education is widespread. Technology use is applied to learning what technology is used in pre-K–12 classrooms and to support instructional methods in the preparation program.

Additionally, AACTE's data indicates that novice teachers learn about and experience various forms of assessment and the analysis of data about student learning. For a more complete reporting about teacher education programs, read *The Changing Teacher Preparation Profession: A Report from AACTE's Professional Education Data System (PEDS)*.

Dr. Schrum: My belief is that we must approach this from two directions simultaneously. We must help faculty in teacher-preparation programs become comfortable in modeling effective, student-centered teaching that incorporates technology in appropriate ways. It is time to eliminate the three credits, just-in-case-you-need-it type of class that lumps all technologies into one class. Instead, we need to reconfigure methods classes to reflect the research-based approach, TPACK (technological pedagogical content knowledge).

Professors need to require lesson plans that reflect appropriate use of technology, creativity, and data-driven outcomes. Teacher candidates then will be comfortable and they will learn to create rich and complex project-based learning.

At the same time, we need to support schools (and in particular school leaders) in using technology in rich and authentic ways. We need to foster the notion that teacher candidates and their mentor teachers have a lot to learn from each other about teaching, but also about using new technologies, social media, and alternative assessment models that take advantage of the affordances of the technology.

In order to accomplish this, both locations—universities and K–12 classrooms—need to have access to the same types of technology. I have heard that some universities are poorly equipped, so that their teacher candidates are not familiar with the types of things in schools, and vice versa. This model requires more communication, better funding, and very intentional professional development for educators, professors, and teacher candidates.

Dr. Thorpe: Let me begin by saying that I have pretty much crossed into that place where I don't need to use words like "digital" and "technology." It seems to me that they are inextricably linked to high-quality learning and teaching. Still, we know that our practice isn't there yet.

No matter what the tools and the processes are that we want to introduce into our classrooms, I believe that the first thing any teacher-preparation program must focus on is creating environments in which their students—both undergraduates and graduates—are actually learning while using the tools and resources.

For me, it goes back to what most of us acknowledge: we tend to teach the way we were taught. In some cases, that means how we were taught in primary or secondary school, but it can also mean how we were taught in our preparation programs. The best example I can think of is case methodology. It was a context for learning that I never experienced until I was in graduate school, and before I experienced that sort of learning for myself, I could not imagine deploying it.

The same holds for technology. If I have learned—either as an eleventh grader or an undergraduate—how to use the tools of computational science to

explore the relationship of force, mass, and acceleration (Newton's second law of motion), I am far more likely to use those tools either in teaching high school physics or even at a more basic level with my elementary school students. If there is any transferable truth from my own cognitive patterns—and I think there is—then our teacher-preparation programs must lead the way in providing would-be and developing teachers an environment that is rich in these ways of learning.

I'm sure there are examples of this approach in colleges and universities. Frank Moretti runs the Center for New Media Teaching and Learning at Columbia University, for example, and I have seen amazing changes in university-level teaching there as a result, but I doubt this kind of institutional commitment is universal enough to ensure that the next generation of the nation's teachers is as comfortable using technology in their teaching as they may be in other parts of their lives.

The National Board for Professional Teaching Standards (National Board) is making a direct commitment to this kind of thinking about teaching and learning. As we gather videos and reflective papers from teachers who successfully Board certify and make them available to pre-service and in-service programs through a searchable database, teachers all over the country will have access to such practice, often having multiple and different examples of how to approach the same learning challenge.

ATLAS (Accomplished Teaching, Learning, and Schools) will not only show educators what accomplished teaching looks like, but it will also help educators get inside the heads of accomplished teachers to understand how they think about their work with students. And it will do this with unprecedented quality control and quantity.

How can the K–12 and higher education systems collaborate to ensure that teacher candidates can transition seamlessly from higher education institutions into a learner-centered classroom where personalized learning for each student includes rigorous content delivered through technology in a collaborative environment?

Dr. Berry: We need more bold policymakers who will fuse higher education and K–12 resources so there can be a more seamless transition from pre-service training, through induction as a new recruit, to on-going development as an expert teacher and leader from the classroom.

Dr. Coble: That is a very big and important question. But the first step is for the two communities to be in structured communication with each other at the "macro level"—meaning system leaders must have some intentionality around assuring a more seamless hand-off between K–12 to higher education.

At the "micro level," higher education institutions and the local schools and historic school districts from which they draw most of their students must be in dialogue, have to be collecting data on how transitions are working now, and use that data to improve conditions for the future.

Dr. Carroll: The K–12 and higher education systems can create a seamless transition from preparation to practice by working together in an interest-based partnership. If the starting point of the conversation is about how to recruit and retain better prepared teachers for this community, then the two institutions can develop some shared strategies with shared accountability, such as

- clinical experiences during teacher prep;
- recruitment pipelines/agreements for earlier hiring and orientation;
- induction for first-year teachers or teachers needing support when assignments change;
- selecting and overseeing mentoring relationships;

- development of collegial supports;
- integration of new teachers into the school and community;
- online communities that engage current, mentor, and future teachers; and
- alumni support groups for teachers placed from partnering higher education institutions.

Ms. Robinson: This learning objective is accomplished in a clinical setting—an actual classroom where this form of instruction is practiced. [At AACTE], we urge programs to work and learn with schools that are in the process of creating this type of environment. This work requires in-depth commitment to each partner for a sustained period of time. Ultimately, both the higher education institution and the school take responsibility for student learning and for the development of novice educators.

The vision suggested in this question is the same embraced by the Blue Ribbon Panel report released by the National Council for Accreditation of Teacher Education. The recommendations from the panel have been embraced in the new standards for clinical development of new teachers that will be required going forward.

Dr. Thorpe: In my mind, there is no question more important than this one. At this point we have spotty teacher-preparation programs with no connection to—nor responsibility for—what happens to their recently graduated students who enter the treacherous period of induction.

Similarly, we have schools and districts that have little or no serious commitment to supporting teachers during those truly formative years, resulting in a "sink or swim" approach that simply doesn't work. It is the worst of all possible scenarios. In essence, it is Ted Sizer's metaphor of "Horace's Compromise" when it should be exactly the opposite.

I didn't have any formal preparation to teach, but I started in a highly-resourced independent school where all new teachers could only teach two classes per semester. That gave me lots of time to observe and talk to experienced colleagues, to focus all of my attention on my two classes, which also were small—only 16 and 18 students—and to learn from my mistakes.

I was given the gift of working under pretty ideal conditions and was able to shape my expectations with that in mind rather than make survival-dependent compromises. Since that's not normal in education—although I wish it were—we simply must reimagine the connection between preparation programs and the years of induction, and the quality of teacher-preparation programs should be measured against how well their graduates do in their first three years as teachers.

The Teacher Preparation Assessment initiative (edTPA) created by colleagues at Stanford is arguably the most promising effort in the country at getting serious about improving preparation and induction by building natural connections between the two. The National Board is part of this effort, and thanks to its federal Investing in Innovation grant, institutions and districts participating in edTPA will be using videos and reflective papers from National Board certified teachers in their instruction and professional development.

Essentially, the use of these materials builds a coherent trajectory from preparation to induction to accomplished, and positions young teachers to sit for National Board certification after their third year as a full-time teacher. If we could ever make such a trajectory the norm in the United States, it would truly transform the profession, and it would do so in the way true professions operate: by building expectations for effective practice based on peer-reviewed and performance-based processes.

When it comes to teacher preparation, there are "traditional" and "alternative" routes to certification. Should teacher-preparation programs be different for each of the two groups of teacher candidates?

Dr. Coble: The terms "traditional" and "alternative" are largely mythical when it comes to describing how teachers are prepared. So-called traditional university programs are as different as the differences some think exist between university and non-university programs. The primary split between what some see as traditional and alternative programs lies in making the teacher candidate the "teacher of record" before they are fully licensed to teach.

No other profession, not even barbers or hairdressers, are allowed to practice before they are licensed, but allowing non-licensed persons to teach is broadly applied as "alternative" teacher education in America—unlike in any other modern nation.

Dr. Carroll: Some states and higher education institutions who partner with alternative certification programs are looking at ways to individualize the preparation of teacher education candidates based upon the competencies they bring to teaching. This competency-based approach acknowledges that there are many pathways to the education profession.

While this is an excellent way to bring career changers and other talented individuals into the pipeline, it is essential that all teacher education candidates are accountable for demonstrating the same level of effectiveness in order to receive initial certification.

Ms. Robinson: I want to make a few preliminary comments before answering this question. The expectations around quality and effectiveness should be the same regardless of the type of preparation programs. There should be one bar for entering the profession in each state and multiple ways for individuals to reach that bar. State policymakers have done much to lower the standards of entry into the profession and are jeopardizing the education of pre-K–12 students by creating different sets of standards for "traditional" and "alternative" preparation programs whereby often individuals need to meet fewer competencies to become teachers if they go through an alternative pathway.

A second quandary is that the delineation between "traditional" and "alternative" is becoming more difficult to discern as higher education has moved to a more clinically-based model. Thus the continuing insistence of policymakers to maintain distinctions between what is "traditional" and "alternative" doesn't serve the current educator preparation landscape. We are seeing major shifts in the structure and delivery of teacher preparation and maintaining twentieth-century terminology isn't helpful.

To answer the question, though, we must have multiple pathways into the profession because people enter the profession at different points in their life. For undergraduate students, they need a four- or five-year program to obtain a solid liberal arts background, dive deeply into the content area in which they want to teach, have clinical experiences in multiple settings so that they can make more informed decisions about the grade levels and content areas they want to teach, and have extensive pedagogical training and support.

For career changers, shorter programs with intensive clinical components make sense because presumably these individuals already have a liberal arts background and deep content knowledge. Where they need help is in translating that content knowledge into effective instruction. As adults we often have to be untaught the way we were taught and be disabused of assumptions about teaching. And given that it has often been many years—if not decades—since the career changer was in a p-K–12 classroom, he or she has a wide learning curve about the realities of today's classrooms.

Dr. Thorpe: Teacher preparation should be standards based, and those standards, while minimally defined by state licensure requirements, should be primarily shaped by the profession itself. Achieving consensus around this single point is essential if teaching is ever to achieve the same strata as other professions, such as medicine and law.

There are very few alternate routes into other professions. An undergraduate could take a traditional approach to medicine, for example, by taking the required undergraduate courses in science (and other areas) and the Medical College Admissions Test. An older, mid-career person could decide to go into medicine—and is welcome to do so—but he or she must meet those same requirements. The situation is now similar in law.

Neither of these professions started out with such conformity: 100 years ago there were many ways to become a "doctor" and it's been more recent that a person could "read for the law" rather than attend law school. The stature of both professions—and others to which teaching ought to compare itself—is now heavily dependent on a single pathway into the profession.

Let me say something about alternate routes to teaching, particularly Teach for America (TFA). Teachers and other detractors of these programs spend a lot of time criticizing them, but their concerns are misplaced. TFA only exists because the nation's teacher-preparation programs are so inconsistent. I doubt we'll ever see Teach for Finland or Teach for Singapore because in those countries, as well as in other high-performing countries, much has been invested in ensuring a quality pipeline into the profession.

We need to double-down on creating quality teacher-preparation programs, and those programs must be designed not at helping people receive a license to teach but at the much more important goal of becoming accomplished—as measured by National Board certification—within three to five years. Until we do that, the nation will continue to have the terrible attrition we see among those in their first five years in the profession—costly beyond belief in terms of dollars and lost opportunities for our children—and the general low stature for people who truly deserve to be considered among the most important people in our country.

Teaching is a cognitively complex, collaborative, and high-expertise profession. It also requires time and practice (in the professional sense of that word) in order to become accomplished. There is no "fast-tracking" the attainment of accomplished status. No first- or second-year teacher can be as effective as a fifth- or sixth-year teacher because they simply haven't been immersed in enough teaching and learning situations to inform their judgment.

Preparation programs—regardless of whether they are deemed alternative or traditional—must ensure that their graduates possess the requisite subject-matter expertise, pedagogical knowledge and skills, and pedagogical-content knowledge that lead to being effective in the classroom.

Dr. Wolf: For candidates to truly be prepared for the educational needs of students, both traditional and alternative programs should incorporate several key elements. In a recent Center for Teaching Quality publication, *Teaching 2030: Leveraging Teacher Preparation 2.0*, several master teachers and other experts articulate core components for teacher-preparation programs. These include, but are not limited to, residencies in real teaching and learning environments that are cohort based; interdisciplinary education; competency- and performance-based assessments and progressions; and face-to-face and online collaboration.

Programs that address these core components may look very different, but they can all strive to provide a rich experience for candidates that allow them to grow in their content knowledge, pedagogy, and application of instructional strategies.

An underlying message in this set of components is that content knowledge, learning about pedagogy without practicing strategies, and reflecting without a cohort of peers and experts are not enough by themselves. However, programs that allow candidates to develop this set of skills and knowledge, while allowing them to learn and reflect with a cohort and apply strategies in a real-world setting, will much better prepare candidates for the teaching profession.

It seems as though institutions of higher education are often playing catch-up, in that they are constantly reacting to new policies and practices in K–12 education by integrating them into existing structures. What concrete steps can be taken now to get ahead of the curve in this area?

Ms. Robinson: Higher education institutions are being challenged like never before to clarify the return on investment in terms that are more useful to students, the public, and potential employers. This demand is leading to discussions about appropriate outcome measures.

One recent proposal offered by the federal government would require higher education institutions to follow their graduates into the workforce and report on their income after graduation. This is called the gainful employment requirement. While gainful employment will not become a reporting requirement in the near term, it is an indication that outcome measures are highly valued, and higher education is well served to create appropriate outcome measures.

For example, edTPA is such a measure. We have never in higher education, done the best job of telling our story. And it often goes against the grain of higher education to justify and explain the work that it does. We no longer have the luxury, though, of staying in the ivory tower and resting on our tenured laurels.

Educator preparation programs are well-positioned to show the rest of higher education how to be true partners in contributing to the welfare of the local p-K–12 education communities. We can get ahead of the criticism and stem the seemingly unending tide of state and federal policies that are put on us if we reorient our mission around serving the p-K–12 education community.

Dr. Coble: I think the only way to reduce the perceived and real gap is for there to be deep university-school teacher-preparation partnerships, where K–12 and higher education educators see themselves as partners in the enterprises of recruiting, preparing, inducting, and developing teachers.

Dr. Wolf: Communication and collaboration with local education agencies (LEAs), district and school leaders, practicing educators, and policymakers are both critical for teacher-preparation programs to ensure that they are preparing candidates for the education systems they will become part of and the roles of the teacher that they will be asked to fill. This communication and collaboration can benefit the districts, policymakers, and teacher-preparation programs by ensuring alignment with policies that direct the teacher certification requirements, preparation experiences, and day-to-day realities and expectations of the K–12 schools.

When considering the need to be more student-centered and ensure that all students graduate prepared for college and a career, it is essential that the potential of teacher candidates is maximized so they can be fully prepared from the beginning of their career. While this sounds obvious, it is frequently not the case in the current system.

Progressive teacher-preparation programs are working closely with LEAs to develop programs that make sense; collaborate during teacher-preparation residencies and into the induction period; and provide and solicit feedback on the performance of program graduates.

How can advances in teacher preparation / technology integration help address the urgent need for qualified teachers to support English language learners?

Ms. Robinson: Technology integration is essential to modern practice regarding English learners. Using the technology for instruction involving repetitive activities can provide immediate remediation to inform the subsequent effort. Technology can be used to give reliable feedback and simulations that encourage more ambitious effort and to enlarge vocabulary. The student can be engaged with an avatar instead of the human teacher. These are but a few examples.

Dr. Coble: For me—a recent beginning learner of Spanish and one now studying French—access to native speakers over the internet and learning more about different cultures where these languages are spoken has been invaluable. I can only assume the same holds true for younger learners. We have a pervasive practice in the United States in focusing on teaching *about* the language rather than actually teaching people to *understand* and *speak* the language. I think technology applications can help change that.

Dr. Carroll: Teacher-preparation programs that are effectively integrating mobile technology in their programs have a new tool that can support all teacher education candidates, including those who support English language learners. Smartphones and tablets provide teachers at all stages of their careers with anytime, anywhere access to resources that support professional growth and effective instruction.

Mobile devices all have the potential to provide a truly differentiated learning experience for K–12 students. However, effective integration of this powerful technology doesn't happen the moment a teacher education candidate, classroom teacher, or K–12 student begins working with a device. Explicit and thoughtful training, modeling, experimentation and reflection are keys to successful integration. NCTAF's TLINC 2.0 project allows higher education institutions to pilot the use of mobile devices for professional growth with faculty, teacher education candidates, and mentor teachers.

With support from Qualcomm's Wireless Reach Initiative, TLINC provides a model for how to provide anytime access to an online professional learning community. The use of new and mobile technologies as an instructional tool is also an area of exploration for TLINC projects, but the emphasis of the work is on technology as a tool for improved communication and collaboration between pre-service teachers, faculty, and district partners.

The TLINC sites—individually and collectively—are demonstrating how technology can play a significant role in ensuring that all teachers are supported in strong professional learning communities.

Special thanks to the experts for their time and perspectives in addressing these important questions.

Click on the links below to view the archived "Perspectives on the Future of Teacher Preparation in the Digital Age" webinars, which focus on the future of teacher preparation in the digital age, highlight promising developments in remodeling teacher-preparation programs, and explore the challenges in making lasting, systemic change:

Part I: December 11, 2012
Part II: March 20, 2013