

Digital age learning in a secondary teacher preparation program

Anne René Elsbree
California State University San Marcos

Pat Stall
California State University San Marcos

Annette Daoud
California State University San Marcos

ABSTRACT

This paper focuses on how one redesigned secondary teacher preparation program uses digital age learning persuasion, self-directed learning, co-teaching, personal learning networks, digital collaboration and digital teaching strategies for building habits of mind, skills and dispositions for teaching in the 21st Century. According to the Project Tomorrow's 2012 Speak Up For Higher Education Survey, overall, the secondary teacher candidates use more technology than their national peers in terms of their digital age learning: finding experts online, posting to blogs/wikis, providing online support for peers, starting wikis/blogs to connect with others and tutoring others who needed help. The candidates also out performed their national counterparts in terms of the using technology to prepare for teaching and for teaching: creating websites to manage classroom, creating blogs/wikis, integrating student's mobile devices into instruction, managing a class using a learning management system, and using social media to facilitate student collaborations. This paper emphasizes the need to support educators to navigate the complexities of building and maintaining habits of mind, skills and dispositions for digital age learning. Digital learning tools can help educators create a culture for their own learning as well as their students. Life-long digital learning strategies can help teachers meet the diverse needs of all students.

Keywords: co-teaching, clinical practice, digital age learning, personal learning networks, secondary, self-directed learning, teacher preparation, technology

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INTRODUCTION

Teaching in the 21st Century is increasingly complex because of the constantly changing digital, discovery, and political nature of the culture in the United States. To prepare the next generation of teachers, this research re-envisioned a secondary teacher preparation program with a focus on clinical practice and digital age learning. Previously, the program was organized by front-loaded, out-of-context coursework followed by student teaching. This type of preparation is no longer adequate, because it lacks ongoing support and purposeful application of learning. The stakes for the next generation of students are too high for us to risk their generation's potential with a "sink or swim approach." Novice teachers need a supportive system to develop habits of mind, skills and dispositions to positively navigate all the complexities of teaching. Teachers also need to learn how to create a culture for their own learning as well as their students. New teachers need to learn life-long learning strategies to have access to the needed tools for the changes they will experience during their careers. Digital age learning can be a valuable tool to prepare the next generation of learners and teachers (Tapscott, 2009).

PROGRAM REDESIGN

The redesign of this teacher preparation began two years ago, by making clinical practice (student teaching) the focus of the program, placing teacher candidates in co-teaching placements, and integrating more digital age learning activities. The new organization of the post baccalaureate one-year (two semester) program is outlined in Table 1

Comparison of Previous and Redesigned Program Semester Organization

Previous Program Organization	Redesigned Program Organization
8 weeks coursework, M-Th	16 weeks coursework, M
8 weeks clinical practice, M-F	16+ weeks in clinical practice, T-F
Traditional clinical practice	Co-teaching in clinical practice
Coursework begins with University's calendar	Course work begins prior to public school calendar
Clinical Practice begins week 8 and ends with public school calendar	Clinical Practice begins and ends with public school Calendar

In previous years, the teacher candidates took eight-weeks of coursework (Monday through Thursday) followed by eight-weeks of clinical practice (Monday through Friday) and then repeated that sequence for a second semester at a different school site. The redesigned program dedicates Monday to coursework with the goal to prepare the candidates to participate in clinical practice Tuesday through Friday for 16-weeks, and then repeated at a different school site for a second semester.

To better support teacher candidates and to help them develop habits of mind associated with the teaching cycle – plan, teach, reflect – the co-teaching model in clinical practice was implemented. Villa, Thousand and Nevin (2013) define co-teaching in clinical practice as two or more educators (cooperating teacher and teacher candidate) who share responsibility for planning, teaching, and assessing students. Co-teaching provides ongoing support for the teacher candidate and the high school students as well

as a full year of practice in collaboration, an essential 21st century teaching skill. An equally important teaching skill involves, digital learning, which is defined as self-directed learning that utilizes online tools and resources.

This paper focuses on how the redesigned program uses digital age learning persuasion, self-directed learning, personal learning networks, digital collaboration and digital teaching strategies for building habits of mind, skills and dispositions for teaching in the 21st Century and beyond.

Digital Age Learning Persuasion

Preparing educators for digital age learning is to, first, persuade them to be digital learners. Helping new teachers understand why digital learning is valuable is often the greatest challenge. Once teachers buy into the why, the what, how and where follow more easily. At the 2014 Association for Supervision and Curriculum Development Annual Conference, Daniel Pink made a good case for educators to perfect their persuasion skills. He suggested that individuals spend approximately 40% of their time persuading others. For educators, that means that they often spend their time persuading students to learn topics and concepts, which may not seem relevant in the moment. In pre-internet decades, educators had the advantage because they typically had access to more information than students. But in the digital age, students have access to the same knowledge as educators. Students can determine if an educator's pitch isn't backed up and they can research and learn about topics that are of greater interest than what may be on the teacher's daily agenda.

Pink describes six steps to perfect persuasion skills: 1. Recalibrate feelings of power, so that you can take another person's perspective. 2. Be an ambivert, part extrovert and part introvert, so that you can be relatable to others, but still authentic. 3. Interrogative talk, instead of merely pumping up your confidence, spend time preparing and asking, Can you do this and how? 4. Employ motivational interviewing, which involves asking someone questions to identify the intrinsic reasons that motivate that person to action. 5. Understand the context you are in. It is critical to think about the perspective of your audience and to provide support for the person to take action. It is easier to persuade someone once you know what he/she values. 6. Focus on the *why* and less on the *how*. Since society today is inundated with access to knowledge and the *how* of doing something, people need more time to understand *why*. Then and only then, will someone be motivated to learn the *how* independently.

The program faculty attempted to follow Daniel Pink's six-step model of persuasion: 1. Teacher educators recalibrate their feelings about power by acknowledging the teacher candidates' power and helping them learn about how they learn effectively and to acknowledge their mastery of digital learning. 2. Teacher educators play roles of extrovert and introvert persuader in an attempt to explain the why of digital learning. 3. Teacher educators share their interrogative self-talk, by questioning themselves out loud about their ability to persuade them to fully engage in digital learning this year. Teacher educators explain their strategies to help the teacher candidates become digital learners. 4. The teacher educators ask the candidates questions about what motivates them to learn and then assign them to document their learning on a topic of their choice. And time is provided in the preparation program classes to support the candidates' learning. 5. The

teacher educators make an effort to understand the candidates' context and all the tasks the candidates are juggling as they learn to teach. 6. The teacher educators teach candidates how to use digital tools to begin their online presence, to manage the knowledge they find, and to self-direct learning.

To persuade the teacher candidates, the faculty not only provide the *why* for using digital learning pedagogies, but they also provide the candidates the *what* (what is digital learning) and the *how* (how do you learn digitally). The teacher educators provide instruction on how to learn in the digital age through strategically designed class activities and assignments that allow student centered learning. At the program orientation candidates are provided with a full day of digital learning instruction with explicit scaffolds for essential digital skills and literacies to advance their knowledge of how to use technology for their own personal, academic, and professional purposes.

To accommodate access, the program loans candidates an iPad for their personal use during the academic year and provided desktop computers during Monday courses. In addition instructors provide the majority of the reading content for the courses with open education resources online, to model how to provide free and accessible education resources. As a result of this effort, the candidates' material costs were reduced from \$250 to under \$50 per semester.

Self-Directed Learning

Self-directed learning is the ultimate of student centered learning because it allows individuals to choose *what* they want to learn and *how*. Phillip Candy (2004) describes six major conditions for self-directed digital learning: connectivity, competence, content, credibility and confidentiality, capturing information and collaboration. Any topic can be researched and explored with connection to the internet.

The *what* and *how* of knowledge has transformed into the *where*. The 21st Century society has shifted from valuing the mastery of a set knowledge or mastery of *how* to use that knowledge - to mastery of knowing *where* to find any set of knowledge needed. The next generation of teachers needs to know where to find the knowledge needed to learn, prepare to teach and to teach. 21st Century educators must be dedicated to life-long learning in formal and informal settings.

Informal learning is as valuable if not more valuable than some formal learning, because the digital age has opened up more pathways for informal learning. High School students are certainly using the internet to investigate their interests and to learn on their own. This new access has made it possible for individuals to seek knowledge spontaneously without permission for access. The pathways can include communities of practice and personal learning networks.

Candidates developed a *20% Project* where they documented learning on a topic of their choice over the course of a semester. The assignment is based on the Google's 20% Project where employees spend 20% of their time on a pet project, freedom to pursue an innovative idea that goes beyond their job description. As a result Google employees created Gmail, AdSense and Google News. To help with the 20% Project learning, the instructors provide the following scaffolds: model previous projects, provide a rubric to clarify expectations, facilitate project pitches in a 3-minute YouTube Video with feedback provided in the comment section on the YouTube Page, form social media

teams to provide support online and face-to-face weekly during coursework and faculty members monitor and provide feedback biweekly.

Personal Learning Networks

A Personal Learning Network (PLN) is a tool for learning in the digital age. A faculty member in the program, defines a personal learning network by working backwards and defining each word:

Network is a group of people with whom you associate. This could be either in person or online. A person can be a member of your network who you have never met face-to-face, and obviously, close friends and coworkers can be a part of your network.

Learning shouldn't be narrowly defined as something that only occurs in an academic setting. Learning can occur at any time in any place. It is not confined to a classroom, or a place of business. You can learn from others and with others, collaboratively or individually. Learning is a dynamic process that occurs for me continuously. The only requirement is a personal desire to learn.

Personal is something that relates to you. PLN may be defined as professional learning network, but the term personal is more applicable for various reasons. The networks in which you participate and the learning that you do should be deeply personal. As an educator, the networks and learning are also professional.

A PLN is a tool that provides educators a way to cultivate knowledge and foster professional growth through nurtured and maintained relationships via social media.

Experts are accessible online, anyone can make a connection via social media, i.e., twitter, blogs, skype. The opportunities are limitless with the PLNs available to educators and students today. Since learners have access to the networks, they can have access to conversations with endless teachers and co-learners. The program faculty members provide guidelines for cultivating a PLN. The guideline differentiates between the three levels of performance: baseline level of being entrenched in the real world network, the approaching level between two worlds or at the advanced level of being in the matrix. Each level describes the behaviors for reading, tweeting, archiving/bookmarking, writing, commenting, and growing/sharing.

Digital Collaboration

Learning is a personal, interpersonal and social activity rooted in cultural contexts. Web 2.0 digital tools allow for new ways to learn personally, interpersonally, and socially through collaboration. Technology has the ability to rewire the brain. The digital tools used redefine and shapes thoughts and actions. For example, the tools one uses for creation informs the process of creation, so if one learns to cut and paste with paper, one will learn how to think of the tangible bits and pieces that made up the whole. But if one learns to cut and paste digitally, the pasting action can take the form of a drag and drop function that may not translate in the first example, because the actions were different in the digital age. So if learning is a personal, interpersonal and social process, then it is critical that the skills and dispositions to use digital tools are taught for

productive digital collaboration. Teacher candidates learn how to collaborate in traditional face-to-face ways and online using google docs, creating online integrated thematic content with colleagues, and through Diigo content trails and webquests.

Digital Age Teaching

Digital age learning requires a change in traditional pedagogy. It requires digital age teaching. George Siemens suggests that in digital age teaching, “control is being replaced with influence. Instead of controlling a classroom, a teacher now influences or shapes a network” (Retrieved from <http://www.connectivism.ca/?cat=3>). He claims that digital age educators are responsible to not only accommodate a student’s learning style, but to also prepare a student to function in the future, as a digital learner. The next generation of educators must provide students with the structure and scaffolds for meaningful learning. Siemens goes on to describe seven roles a teacher plays in digital learning networks: amplification, curation, wayfinding and socially driven sense making, aggregation, filtering, modeling, and persistent presence.

Amplification can be seen, when an educator re-tweets a posting to emphasize its message. Curation is when an educator identifies key elements and arranges them in a fashion so learners will encounter them frequently in different context until the concepts resonate in meaningful ways. Way finding and sense making refers to how a learner makes sense of fragmented information in an active exploration. Aggregation, for an educator, means sifting through the data and helping learners see the patterns of such data content and its structure. Educators can filter resources for learners through wayfinding, sensemaking and aggregation. Modeling is just as valuable online as it is offline. Learners need to see educators model effective strategies for self-directed learning. A persistent presence is an online presence where one can know, be known and connect with others. An online presence provides a place to express oneself on a blog, twitter, facebook or a combination of different social networking sites. A persistent presence provides a place to be discovered in order to connect with others and to engage in digital learning.

To learn how to teach online, the Digital Pedagogy Project requires the teacher candidates to become a producer of content on the web - to design a multimedia learning environment online, such as a website or blog. Candidates are encouraged to design something that can be used in the clinical practice, so they experiment with the content curriculum and how their students are engaging with the online learning environment. Candidates have the option to do this assignment alone or as collaboration with a fellow teacher candidate.

According to the Project Tomorrow’s 2012 Speak Up For Higher Education Survey, overall, the secondary teacher candidates use more technology than their national peers, even when not directed or required to do so as a part of their preparation program. It can be inferred that this significant difference can be attributed, in part, to the infusion of the digital age learning activities throughout the program. Overall, 82% of the CSUSM candidates indicated that they strongly-agreed or agreed that they were being well prepared to use technology effectively to enhance student achievement. Seventy-two percent of the national respondents indicated that they were similarly prepared.

In terms of digital age learning the teacher candidates out performed the national candidates in terms of finding experts online, posting to blogs/wikis, providing online support for peers, starting wikis/blogs to connect with others and tutoring others who needed help (see Table 2 for details).

Table 2

Technology Used to Learn by CSUSM and National Teacher Candidates

Technology used to learn	CSUSM	National
Found experts online	45%	20%
Posted to blogs/wikis	37%	21%
Provided online support for peers	39%	29%
Started wiki/blog to connect with others	26%	10%
Tutored others who needed help	34%	24%
Used mobile application for self-organization	32%	22%
Used Twitter to communicate or follow others	32%	20%

Note. From *Speak Up 4 Higher Education Survey*, by Project Tomorrow, 2012.

In addition, the candidates also out performed their national counterparts in terms of the use of technology to prepare for teaching and for teaching. See Table 3 for specifics. The candidates out performed in the areas of creating websites to manage classroom, creating blogs/wikis, integrating student's mobile devices into instruction, managing a class using a learning management system, and using social media to facilitate student collaborations.

Table 3

Technology Used to Teach by CSUSM and National Teacher Candidates

Technology used to teach	CSUSM	National
Creating website to manage my classroom	62%	44%
Creating blogs/wikis	69%	41%
Integrating students' mobile devices into instruction	51%	19%
Managing a class using a learning management system	31%	14%
Using social media to facilitate student collaborations	44%	25%

Note. From *Speak Up 4 Higher Education Survey*, by Project Tomorrow, 2012.

CONCLUSIONS

The re-envisioning of this secondary teacher preparation program is in flux, because it is preparing educators to meet the current needs of students today, and to imagine the needs of tomorrow and to prepare students to learn how to adapt and function in the future, as digital learners. The teacher candidates have flourished after the rejection of the old-school teacher preparation that focused on front-loaded, out-of-context coursework followed by clinical practice that was minimally supported. This traditional preparation is not only inadequate, but it puts the next generation of learners at risk. The future teachers need to have ongoing support and models of and experience with face-to-face, blended, and online learning to help them meet the needs of their high school students. Persuasion to engage in digital age learning is a critical starting point to motivate educators to direct their own learning, through tools such as personal learning networks and digital collaboration that will make it possible for them to master digital teaching for the 21st Century and beyond. Teachers need a support system to navigate the

complexities of building and maintaining habits of mind, skills and dispositions for learning. Digital learning tools can help educators create a culture for their own learning as well as their students. Life-long digital learning strategies can help teachers meet the diverse needs of all students.

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