**Creating a Constructivist Online Instructional Environment**

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# Abstract

This paper describes the ways in which social constructivist learning was fostered in an online teacher education program. In fall, 2010 we launched an online Masters of Education (M.Ed) and in spring, 2011 and began an online version of the on-campus Masters of Arts in Teaching (MAT) at a small liberal arts university. The development and implementation of these online programs presented new pedagogical challenges and questions. We focused the inquiry on how to adapt a community-focused, constructivist, oncampus pedagogy to an online format.Grounded in and driven by social constructivism, we identified several essential online tools and instructional methods that facilitated the kind of candidate-candidate and candidate-teacher interaction desired.This paper explores the potential of certain online tools and methods to facilitate a social constructivist approach to preparing teachers in a virtual program model.

***Keywords:*** asynchronous instruction, col-

laborative learning, constructivist instructional methods, distance education, online teaching, social constructivist learning, student voice, synchronous instruction

# Introduction

As teacher educators, regardless of the learning format, we (the authors) are grounded in a social constructivist approach to learning. We believe that learners make sense of the world around them, as well as new information, by working to construct knowledge through interaction with others, texts, social media, etc. This social constructivist view of knowledge generation is the foundation for our online teacher preparation program. In this paper, we explore the potential of certain online tools and methods to facilitate a social constructivist approach to preparing teachers in a virtual program model.

# Perspectives from the Literature

**I**

n fall, 2010 we launched an online Masters of Education (M.Ed) and in spring, 2011 we began an online version of our on-campus Masters of Arts in Teaching (MAT) at our small liberal arts university. The development and implementation of these online programs presented us with new pedagogical challenges and questions (we had previously only taught face-to-face [F2F] courses). Mostly, we wondered about how we were going to adapt our community-focused, constructivist pedagogy to an online format.

As teacher educators, we take a philosophical stance that is founded on the assumption that students learn by working collaboratively with various social impacts and influences to make sense of new knowledge (Brophy, 2002; Vygotsky, 1978). Oldfather and West (1999) write, “*Social constructivism is not a method*. Rather, it is a view of learning that provides a theoretical base for making decisions about pedagogy and curriculum” (p. 91). A social constructivist view of learning emphasizes the role and nature of interaction with others to challenge what is known, enhance connections with existing knowledge and build new pathways for additional ideas (Brooks & Brooks, 2001). In the context of teacher education, these “others” include collegiate peers and instructors, collaborating teachers and others in the schools, data and artifacts from learning and teaching and various forms of texts. In face-toface (F2F) teacher education classes, engaging with “others” tends to involve extensive class discussions, projects that require group work, questioning activities that probe and challenge what is known, field experiences that emphasize interactions with collaborating teachers and candidates, among many other instructional approaches. As a learning theory, the primary goal of social constructivism is to provide collaborative instructional approaches that “stimulate thinking in learners that results in meaningful learning, deep understanding and transfer to real-world contexts” (Brophy, 2002, p. xii; see also Oldfather & West, 1999).

Any educational setting that privileges social constructivism puts student discourse at the center (Doolittle, 2001). Doolittle writes:

It is imperative to stress that dialogue does not imply simple discussing and telling, but rather, includes the analysis of ideas, the synthesis of verbal sources, the evaluation of the intersection of multiple sources, and reflective explanation of one’s own thoughts and understandings. (p. 512)

The kind of dialogue that Doolittle describes “needs to be an everyday event, so that students begin to engage in meaningful discussion generated by genuine interest and a curiosity for knowledge” (Von Dras, 1993, p. 61). In order to elicit genuine interest and curiosity among online candidates, pedagogical and instructional choices must be suited to the context and the candidates (Nuthall, 2002; Wells, 2002).

To build an online social constructivist environment that enhances candidates’ critical engagement with new course content, paying close attention to cognitive presence is essential (Garrison, 2007). Cognitive presence is defined as the “ . . . exploration, construction, resolution and confirmation of understanding through collaboration and reflection in a community of inquiry” (p. 65). Cognitive presence is essential to critical thinking and a goal that we set our pedagogical sights on as we explored appropriate online teaching tools and methodologies (Garrison, 1999).

Creating the “necessary conditions” (hooks, 1994, p. 13) for a collaborative community of learners to occur in an online format can be challenging. As Sims (2003) puts it, “The challenge for designers is to create learning environments that will manifest the conditions for effective interaction” (p. 101). A common skepticism about online instruction is that it is often perceived as being teacher-centered, impersonal and lacking a connection between students and teachers (Dunlap & Lowenthal, 2010; Bonk & Zhang, 2008). To counter this teacher-centered view and approach to teaching in online contexts, “ . . . instructors must strive to optimize interaction between learner-instructor, learner-learner, and learner-content through effective modes of communication” (McBrien, Jones, & Cheng, 2009, p. 3). Frequent and varied interaction between instructors and students facilitated by the use of synchronous and asynchronous tools provides a supportive and collaborative environment that has the potential to enhance distance education (Schullo, Hilbelink, Venable, & Barron, 2007; Falloon, 2001; Anderson, 2003).

# Program Overview

Our research context focused on programmatic initiatives as well as course experiences in both online M.Ed. and MAT programs for preservice and in-service teachers. The graduate school of education utilizes a conceptual framework centered on socially just teaching and learning experiences and uses this as a lens to develop reflective educators, prepared to lead and foster productive experiences in schools. The instructional standards of the International Association for Online K-12 Learning (iNACOL, 2011) provide a context for our work. The standards on instructional design align with our work, emphasizing the need for multiple learning paths, critical thinking and reasoning, and interactive relationships between candidates and instructors (for more detail, see Section B: Instructional Design).

In both programs, candidates participated in online learning experiences that privileged interaction and conversation in many formats, as a model for experiencing the community of discourse with other professionals. The courses in this study spanned a range of “typical” teacher education content including educational psychology and human development, literacy theory and methods, curriculum and instruction, diversity and equity, and courses related to teacher research. The candidates in the MAT program were teaching in a variety of contexts around the state, covering the K-12 spectrum, working with students in rural, urban and suburban settings. The candidates in the M.Ed. program were teaching students in a range of content areas from elementary ESOL to high school home economics as well as English language learners in Korea.

**Implementation of a Social**

# Constructivist Online Pedagogy

Grounded in and driven by social constructivism, we identified a few essential online tools and instructional methods that facilitated the kind of candidate-candidate and candidateteacher interaction we strove to implement. We accomplished this by carefully analyzing online tools/applications for their potential to allow us to elicit meaningful dialogue among candidates and teachers. We then matched course objectives with the online tools/applications we thought had the potential to teach those objectives and then researched and imagined how to most effectively use each tool. To follow is a discussion of the online tools we used and found successful and have shared examples from our experiences in achieving the goals we had with our candidates.

# Social Constructivism through Podcasting

As previously stated, we are committed to finding ways for candidates to use dialogue (writing and speech) to make sense of content and to actively participate in the discourse community. We use audio recordings as one strategy to support and elicit student interaction and, thus, our pedagogical values. For example, some of our assignments invited candidates to respond to discussion questions by recording podcasts on their phones using Yodio. We then ask them to share their Yodio recordings with peers via email, blog and/or Course Management System (CMS). In the Educating for Equity class, candidates read two pieces, *Harrison Bergeron* (Vonnegut, 1968) as well as a conceptual piece of various ways to look at diversity and difference in the classroom and recorded a two-minute Yodio response to the discussion question and posted the link to the audio file onto CMS. From there, the candidates were to select two of their group members’ Yodio files to listen to and respond in writing or through Yodio using the CMS discussion forum. In the following example, one can see how Jackson utilized the Yodio podcast, his peers’ Yodio posts and the shared written responses to understand the objectives of the reading and the assignment question:

## First posting (Yodio voice record-

**ing):**  I can’t lie; I was really confused throughout these readings. I think I got it all in the end, but the questions were weird. How are the four lenses present in the story? I feel like the questions should have been how are they not present in the story? I am sure this was just me. (Jackson, March 16, 2011, 9:09am)

## Second posting after reading and

**listening to others (written response):**  The thing that I found most interesting was that the handicapping was not about building people up, but bringing everyone down. Like Barbara said about beauty being in the eye of the beholder, shouldn’t there be some sort of selfesteem building involved? Or a change in what is seen in that world as beauty? I didn’t see it at first until I heard from other people, but this is a really interesting topic because it can be interpreted in so many ways. (Jackson, March 20, 2011,

11:24 am)

**Third posting directed towards instructor (written response):**  I realize now after hearing from everyone else what you were trying to get out of the activity. It is actually a really interesting activity now that I see how everyone is responding to it. (Jackson, March 20,

2011, 4:42p.m.)

Jackson’s comment, “I didn’t see it at first until I heard from other people…” illustrates how, with the help of the Yodio audio files from his peers, Jackson was able to work through his stated confusion. This assignment and tool provided a venue for candidates to *present* their understanding of the content, and more importantly, is a way for them to process and interact with the new information. Jackson’s written responses suggest that the audio assignment served as a catalyst for him to challenge what he thought he already knew and, in the end, allowed him to integrate new ideas.

# Social Constructivism through Google Documents

Google Documents provide us with a virtual, dynamic and interactive tool that inherently creates collaboration and interaction. Google Documents allows our candidates to create texts together on a single, Internet-based document synchronously or asynchronously. Because candidates are able to write on a shared document, easily insert multimodal texts, quickly move between the Internet-based word document and websites, work synchronously or asynchronously and create a document/text collaboratively, we rely extensively on Google Documents to implement online social constructivist instruction.

The following is an example from the Literacy Theory and Methods class in which we used Google Documents to challenge candidate assumptions about how children learn to read. On the Google Document, the instructor pasted a number of images, i.e. picture of a clock, map, compass, weather report, etc. Candidates were asked to “read the pictures.” The images and the “read the pictures” directions were a triggering event (Gallagher 2009) that produced meaningful dialogue as a result of genuine candidate interest and curiosity. Being asked to “read” pictures was unexpected. To most, reading is something done with text and not images. After candidates viewed the images, they were to write their reactions to the activity on the Google Document.

See the examples below from February 2012:

Okay I must confess, now I am lost. I can interpret some of these images, have an emotional reaction to some, view some, comprehend some of their accepted meaning (like the road sign), but I personally would have said I can’t read them. Except read a map and maybe the music, yes, for sure.

Here, Judy expresses confusion from the images and question, “ . . . now I am lost.” Her classmates respond to her confusion:

I go back to the definition of the word read and we not only read words, but also symbols. We then derive meaning of those symbols by process. I can read the symbolism of the music sheet, but if asked to comprehend it and play an instrument, I would be unable to do so.

Micah shares information from something she learned in a previous class activity: “I go back to the definition of the word read”—directing Judy’s attention to something the class learned earlier. Her classmates continue the dialogue:

Each picture to me has some kind of association with it. Some strong and others very weak. I am not sure I understand the whole scope of it but I know that symbolism is somehow a major underpinning of learning and knowledge. The pictures of themselves have no real meaning but when combined with our memory and experience it creates a context in our minds.

I can read these pictures and symbols, but it begs to question: Will everyone have the same idea/reaction/emotion/thought that I relate to the pictures?

This is really interesting. At first, I too, was searching for some kind of relationship between the photos and how they all fit together. Then, I came to the realization that would basically be impossible because everyone would see something different or have a different interpretation.

Together, the candidates integrated new information: “symbolism is somehow a major underpinning of learning and knowledge;” connected ideas: “At first, I too, was searching for some kind of relationship between the photos . . . “; and applied new ideas: “Then I came to the realization that [sic] would basically be impossible because everyone would see something different or have a different interpretation.” The dynamic and collaborative nature of Google Documents allowed for candidates to analyze their notions of what it means to read through questioning, confessions of confusion and working to generate shared meaning. It’s important to also note that the informal nature Google Documents (rather than a presentation tool like PowerPoint) invited reflective explanation of one’s own thoughts and understandings. It is apparent in the text above that candidates were not concerned with showing the instructor that they had the right answer, but more with trying to figure out the concept of what it means to read.

# Social Constructivism through Frequent and Varied Feedback

Our online pedagogy reflects the belief that in order to create a social constructivist learning community where skillful academic dialogue is at the center, frequent feedback to candidates regarding their process and content is essential. We have found that regular feedback from professors in online classrooms is even more imperative than for F2F teaching because of the student-instructor distance that is inherent in a virtual format. For us, feedback has had to go beyond giving candidates quick and timely grades; it is the bridge that can assist candidates in the learning process. The feedback that is provided to candidates can serve as a catalyst for dialogue and inquiry with the teacher as well as with other candidates. In order to achieve this we have found that feedback in an online environment should be personalized for groups and individuals; synchronous and asynchronous; come from both peers and instructors; and help candidates to provide feedback to the instructor about teaching effectiveness.

There are several feedback approaches we have found useful including: Google Hangout conferences, “message from instructor” mini podcasts using Yodio, syntheses of weekly outcomes using candidate work and posted for all such as YouTube broadcasts, group meetings using Google Hangout, email exchanges, phone calls and frequent forum participation from course instructors. Each of these tools has its unique strength and weakness, but we have found that when multiple tools are used throughout a course, online community and collaboration emerge.

As with F2F classes, we have some candidates who tend to participate minimally in group activities and do not seek additional instructor support. In contrast, there are others who can be found on the online forums multiple times a day and also make independent contact with the instructor (Google Messaging, email and phone). Thus, it has become apparent that significant effort must to be made to connect with those candidates who are not very visible as well as with those who participate regularly—each group requires a different kind of feedback. One strategy we have utilized with some success is sending individualized email to each student at key points during the semester. The following is an example of mid-semester feedback given individually to all candidates in the class.

## Email feedback to an individual student (March, 2011)

Strengths: You are all over the forums, commenting, sharing and encouraging your peers! I find this so supportive and feel that your colleagues likely feel the same way about seeing that you’ve commented on their ideas. [. . .] Your comments to them are thoughtful and kind, even if you are disagreeing with them. I appreciate that you are modeling this kind of response pattern. I think you do a good job of discussing the issues of education at large but also weave in your own experiences as a teacher. This balance can be hard to achieve so I think it’s something to continue to experiment with but your kind of commentary is the kind that makes it easier for others to share.

Areas for improvement: [. . .] My thought is that you might think about ways that you can more explicitly cite or reference the readings in your work that help others respond to you because they know where the ideas are coming from and how they might help you build your depth of understanding about the piece by sharing a unique perspective or another way of looking at that idea.

## Various student responses to the shared feedback (March, 2011)

Thank you so much for your thoughtful comments. It made me get a little emotional to have a teacher care enough, at this level in my education, to give me encouragement and support for ways that I can improve myself as a learner and educator. I look forward to implementing your ideas so that I might also be a support to my classmates through more thoughtful and planned out contribution to the class.

Thank you for the guidance; I think I felt lost and this helps my sense of direction in what you want from me as a student.

[. . .] I appreciate the encouragement and will work more on references to the readings.

Regular and frequent feedback to individuals through strategic emailing has proved to encourage and support increased and more effective candidate dialogue and participation. Using individualized email feedback has supported some of our candidates in the development of an understanding of how to use the online learning format most effectively as well as to feel heard and cared for by their teachers.

Another strategy that has been effective for us in giving the whole class or group feedback is through a screencasting tool called ScreenR.com. ScreenR allows the user to record a live image of the computer screen as well as a voice recording. This free and easy-to-use tool has enabled us to give candidates verbal feedback—many have expressed appreciation receiving non-text, personalized communication from us. We have realized that our candidates benefit from opportunities to hear the voice of instructors. Additionally, as instructors, we have found that it can be less time intensive to record a message rather than typing one. Through the verbal, group format we have tailored our responses to address student misconceptions, pose compelling questions, bring candidates’ attention to the text/course curriculum and expand student thinking.

Lastly, what we have found through our frequent analysis of the data is that the “old fashioned” technology of the telephone or the new application Google Hangout can be most valuable (Dunlap & Lowenthal, 2010). There are times when personal and synchronous communication are essential and often can take less time than writing a series of emails. We rely on these applications for dealing with student concerns, addressing complex questions and sometimes just to make that personal connection. Also, it can sometimes take so much less time to meet with a student or a group of candidates via Google Hangout then it does to clarify or provide feedback via an email exchange.

# Conclusions

Creating curriculum and teaching online has provided us with an opportunity to think about our teaching in new ways. As we embarked on this endeavor four years ago, it quickly became clear that we would not just be able to put our F2F teaching on the Internet and successfully accomplish our educational goals as social constructivists. It is a far more complex process. We have realized that distance education has the potential to bring candidates and teachers together in innovative and unique ways, but also has the potential to create an insurmountable distance between the participants. We are learning that deep and meaningful online interaction can be facilitated through the careful examination of online tools matched to course objectives. It has become apparent that those tools that facilitate synchronous and asynchronous contact, audio connection, interactivity--not just presentation and personal connection have shown the most potential for creating courses and a program that is consistent with our philosophical stance.

Online learning offers a unique way of building community, fostering the habit of student questioning, and providing the “space” for candidates to challenge each other and construct new knowledge in the process. With the increasing use of online learning contexts for part or all of a teacher education program, paying careful attention to how teachers develop these skills and attitudes is tantamount to supporting the K-12 children they teach. The online, technology-rich environment provides unique opportunities for pre-service and in-service teachers to engage in a community of discourse, scaffold knowledge, experience cognitive presence and develop “personal” relationship with course instructors. It is evident that in order to achieve those goals, we must keep our sights set on those tools and methods that have the potential to draw upon student voice (writing and speech) and create a sense of interdependence among the candidates to construct meaning together.

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