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Learning through personal connections: Cogenerative dialogues in synchronous virtual spaces

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Abstract
This study describes the role of cogenerative dialogues in a synchronous virtual classroom. Cogenerative dialogues are a way for students and instructors to reflect upon in-class events and work collaboratively during the course to optimize teaching and learning. In the present study, cogen has been found to be a tool for enhancing connections among graduate students in the class leading to a reported increase of motivation and engagement. Cogenerative dialogues were essential in shifting responsibilities so that students took a more active role in their own learning while supporting each other.

Keywords: Cogenerative dialogues, higher education teaching, synchronous online teaching, virtual classroom, adult teaching

Use of online learning spaces has increased dramatically over the past decade and is quickly becoming central to higher education. Yet, there is little evidence about which types of technology tools and pedagogies are effective (Abrami et al. 2011). Specifically, little has been written about effective use of synchronous meeting tools and their benefits.

The purpose of this study is to explore the use of *cogenerative dialogues* (cogen) in a graduate level asynchronous online course. During this study, cogen was conducted using a synchronous learning tool. This study is important that it offers a way of using synchronous technology different from common uses such as lecturing, live polling, and discussions of course content. Cogen was a process where students and instructors met throughout the course to discuss what was happening in the course (Tobin and Roth 2006). Collaboratively, they implemented changes to the course that they believed would optimize teaching and learning. The primary goal of cogen was shared responsibility for teaching and learning in the course.

The cogen process in this study was conducted via Adobe Connect (AC), a virtual classroom tool, which allowed students and instructors to interact virtually using video, audio, and text communication features. The cogen process used for this study is described in more detail in the next section. The dialogues in cogen were about a graduate level course taught by the lead researcher on the topic of higher education environments. She used cogen to get regular feedback and input from students to improve the course. At a time agreed upon, well in advance of the meeting, a small group of students met synchronously online with the instructor to discuss their experiences in the course. The instructor and students worked to come to consensus about changes to implement in the course. Through this process, students articulated their needs and described what existing parts of the course were helpful. They also offered ideas about what might support their learning. After the data were collected, the research team was able to explore how students' participation changed throughout the duration of the course, and we were able to interpret the role of cogen in students' learning.

Literature review

This study is about adult learners in a graduate program taking an online course as part of an online graduate program. The following

literature provides some background about the needs of online learners and the potential importance for an experience like cogenerative dialogues in the online environment. Although some literature is available on the topic of using synchronous spaces within asynchronous courses, none discusses in detail the connection between adult learner needs, benefits of interactions and relationships in online courses, and uses of synchronous spaces.

Learning in online education

Researchers have identified that learner-centered approaches and interaction are key to learning in the online environment (Palloff and Pratt 2003; Soo and Bonk 1998). Research also suggests there are several types of interactivity in online courses (Thurmond and Wambach 2004). Instructors ranked learner–learner interaction the most important type for the online classroom followed by learner–instructor interaction (Soo and Bonk 1998). Considering this literature about interaction, one could imagine instructors might use cogenerative dialogues to provide more for learner–learner and learner–instructor interaction. Next, we move to a more in-depth examination of literature about social interaction and learning.

As described, there are several types of interaction discussed in literature about online learning. Some types could be described as social interactions. Evidence points to the positive correlation between social interaction and effective learning (Hiltz et al. 2000) and to social, psychological, and academic benefits (Hernández, González, and Muñoz 2014). Virtual online collaboration spaces enable learners to build social relationships. They can provide an opportunity for learning-oriented communications (Xie, Miller, and Allison 2013) and can reduce students' feeling of distance in asynchronous courses. This is consistent with Moore's (1993) theory of transactional distance.

Moore's (1993) theory of transactional distance consists of three elements: structure, learner autonomy, and dialogue. Moore believes that continuous engagement among the students reduces feelings of being distant. McBrien, Jones, and Cheng (2009) suggest instructors not only need to evaluate opportunities for dialogue but also need to analyze the quality of the dialogue occurring among students. Since social interaction has been deemed important in online learning, it is fitting that we used cogen and a sociocultural theory of learning,

cultural-historical activity theory (CHAT), in this study. These concepts and their relationships to each other are explained in the next section.

Cogen and CHAT

CHAT (Leont'ev 1978) informs cogen. Different from cognitive learning theories, CHAT holds that learning occurs through social interactions. CHAT specifically identifies the following elements that mediate learning: students, instructors, rules of behavior, tools and cultural artifacts, community, and the division of labor (Stith and Roth 2010). Each of these elements is expected to shape the others and the learning outcomes. Rules could be described as the expected pattern of behavior (e.g. following teacher instructions). Tools might include assigned readings, activities, or case studies. Cultural artifacts might be syllabi or symbols such as criteria for grading. CHAT assumes the interactions of these elements shape how and what people learn. Stith and Roth (2010) argued students are shaping how the learning in the course occurs whether they are conscious of it or not.

Cogenerative dialogues are a process used by educators and researchers to (a) conduct research and (b) improve teaching and learning (Stith and Roth 2010). Students and instructors meet over the term of the course to discuss what occurs in the classroom and come to consensus on what they will change about the course (Tobin and Roth 2006). The goal is to optimize teaching and learning for everyone in the course. Since we have provided an overview of online learner needs and the importance of interaction, we move to a discussion of interaction in synchronous virtual spaces.

Interaction in synchronous spaces

Current instructional technology offers educators a variety of ways people can connect real time. These tools like virtual classrooms often allow for video-, audio-, and text-based communication, provide the ability to share images, presentations, and incorporate live polling tools that can be used to solicit responses from participants (McBrien, Jones, and Cheng 2009). These synchronous spaces provide

multidirectional communication and can easily be integrated into learning management systems. This provides students the convenience of real time communication and interaction with the instructor and others in the classroom (West and Jones 2007). The research addresses collaboration, but researchers have not studied extensively the pedagogical use of synchronous virtual spaces within asynchronous online courses.

West and Jones (2007) found that students in asynchronous courses have been asking for more interaction and communication with their peers in a synchronous fashion. A few studies have reported on satisfaction with specific tools like Elluminate Live! (E!) (Battin-Little, Passmore, and Schullo 2006; McBrien, Jones, and Cheng 2009), Interwise (Ng 2007), and Horizon Wimba (Martin, Parker & Oyarzun, 2013). Another study suggests that synchronous tools can provide immediate feedback for students (Martin, Parker, and Allred 2013). There has been little reported about how to use synchronous spaces for personal interaction among students and between students and instructors. Literature suggests interaction is important to online learners and key to gaining content knowledge in the online format. What is less evident are benefits of interaction beyond gaining content knowledge. Previous research suggests that space is needed for interactions not focused primarily on course content such as processing student feelings (Palmer and Zajonc 2010) and validating their experiences (Rendón 1994).

Knowing that interaction is important in online learning, this study provides additional specifics about the tool, cogenerative dialogues, which promotes a more personal type of interaction. The literature about use of synchronous spaces in asynchronous courses is limited primarily to technical and satisfaction reviews of specific tools. This study outlines pedagogical benefits of using synchronous space to implement cogen.

The present study is important to online instructors, instructional administrators, instructional technology support personnel, and online learners interested in optimizing teaching and learning. It is especially targeted toward those working with graduate students. The study informs approaches to designing courses that can increase interaction and engagement. The focus of this study is graduate learners, many of whom are working full time and have familial and other external responsibilities while taking courses. Literature about cogen is

focused mostly on K-12, face-to-face science classrooms so this study broadens the understanding of this tool in higher education.

Perspective and methodology

We used a constructivist perspective for this research which allowed us to look for the truth as constructed by participants (Crotty 1998). We believe that meaning is made by people and is dependent on meanings in society. In this interpretive study, we worked to describe experiences of participants and the meanings they made of them (Merriam 2002). This approach accounts for the complexities of participants' lived experiences in a specific learning environment.

For this study, the lead researcher facilitated the cogen meetings as the instructor of the course. During meetings with students, the instructor asked 'what do you notice about class that supports your learning?' and 'what do you think you need to optimize teaching and learning in the class?' She allowed students to shape the discussion. As described in the literature review, CHAT, the theory that informs cogen, focuses on how social interactions shape the learning outcomes and other elements of the learning process (i.e. people, rules, tools, and division of labor). Therefore, our approach to this research centered on the functions and interactions of these elements.

Participants

Participants were enrolled in one section of a higher education graduate course taught entirely online by the lead researcher. All 25 students in this course participated in the study. Twenty-one participants were degree-seeking students in a master's or doctoral program in higher education, at a public, research institution in the Midwest. The degree programs in higher education were available entirely online. Students were living in various US states plus one person was living in an African country. Two of the students had formerly come to the USA as international students and at the time of the study were living and working in the USA. Most students worked full time and took classes part time, which averaged to two courses each term. Exact ages of the students were not collected for this study but are estimated

to range from early 20s to over 60 with the median being 35. A majority of the students identified as white, but six students identified with other racial backgrounds. Pseudonyms were used to protect participants' identities.

Most of the students mastered signing into AC even if they occasionally had difficulty getting their video or audio to work. Students who could not get the video or microphone to work listened to others and typed their comments into the text box. Students in this course reported having used phone-based conference calls in other online courses but none had been accustomed to regular meetings via AC or similar synchronous tools as part of their coursework.

Data collection

Data were collected from one asynchronous, online higher education course at the graduate level. Data consisted of transcripts from cogen meetings. Meetings were held via AC in groups of five students with the instructor of the course and met three or four times during the semester. Meetings were recorded using a function of AC which preserved the audio, video, and text chat participation. The research team transcribed the recordings including audio and text chat discussion.

Data analysis

Data analysis began with open coding of transcripts to start making sense of the data (Merriam 2009). Each research team member reviewed the transcripts from one meeting group to get a sense of what was important to that group. The research team listed the ideas from each group and looked for similarities and differences to address the research question and determine themes that might span the groups. We followed the constant comparative method of data analysis 'comparing segments of data with each other' (Merriam 2002, 45) within and across transcripts and cogen groups.

The next phase of analysis focused on answering the research questions using the CHAT framework. We created a coding list (Miles and Huberman 1994). The codebook included the items already identified in our list and were organized in the CHAT framework so that, for

example, the item *small groups* was categorized as a *tool* within the CHAT framework. This codebook and theoretical framework provided focus for our next reading of the transcripts. We rotated the groups so that each researcher reviewed a new group of transcripts. At this point, we refined our codebook by removing codes that did not saturate the data (Lincoln and Guba 1985), refined some initial codes, and organized codes into two main findings that addressed our research question. Looking for saturation gave us confidence in our findings presented here.

We publicly presented our initial findings four times prior to the writing of this paper and during this process we noticed discrepancies in how we described them. This caused us to reconvene and question our findings. We again entered the data to gain clarity about the representation of our findings in the data. Each researcher analyzed a group of transcripts looking for absence of and support for our findings. Discussion after this analysis allowed us to confirm the major elements of our findings and modify some minor points. The process of challenging each other's perspectives, comparing the analysis within and among groups, looking for absence as well as confirmation of our findings, and achieving saturation gave us confidence in our findings.

Researchers' reflexivity

This research was initiated by the lead researcher who had previously studied the use of cogen in a face-to-face course. She facilitated cogen in a course she was teaching; as such, she had power over the grades of the students. Participants reported their consent to participate in the research to a third party so that the instructor was unaware of who was participating in the research until grades for the course had been submitted. However, her role as professor likely had an impact on how students participated in cogen. Attending to this issue, she focused on asking broad opening questions about how students were experiencing the course, specifically inquiring about what students might not like about the course and what needed change. She also solicited differing opinions from what had already been stated.

The other researchers on this project became involved after the data were collected so did not experience the course itself. Tareq works as an instructional design technology support person assisting

faculty design online courses informed by pedagogy and technology research. He brought the lens of effective use of online tools in education to the research team. He was primarily involved in writing the literature review and reviewing findings to put them in the context of other studies of online learning. Amy, Adam, and Stacy are studying higher education in a face-to-face program. They brought outsider lenses to the project as they are not online instructors or students and did not participate in data collection. They were able to bring their teaching and learning experiences and knowledge of education to the research team.

Each of our perspectives on the data was undoubtedly informed by our worldviews, cultural values, and experiences in schooling. Tareq was raised during his formative years in the USA and also attended school in Jordan where he has familial ties. He identifies with both the culture of Jordan and the USA having resided full time in the USA for the past 17 years. Three other research team members are from the Midwestern US and one person from the east coast of the USA. These backgrounds informed how we constructed meaning of participants' experiences, especially as we relied on our own schooling experiences as one lens for understanding.

Goodness

Goodness of this interpretive research is dependent on the extent to which we were able to present the participants' experiences and the meanings of them through our chosen lens, CHAT. To achieve this goal, we prioritized the measures prolonged involvement, rich data, respondent validation (Maxwell 2013), and construct validity to account for researcher bias (Lather 1986; Maxwell 2013). Additionally, as described in the data analysis section, we specifically looked for discrepant data (Maxwell 2013). In terms of prolonged involvement, we collected data from all the students in the course over the term of the course. We describe in detail the context of the course and participants' experiences as they were explained in the data. Three participants provided feedback that supported our findings. Our team approach to analysis provided strength of construct validity since we challenged each other from our different perspectives to come to consensus.

Findings

Using the CHAT framework, we identified two findings which describe the role of cogen in an online course. They indicate that cogen can increase motivation, engagement, and accountability related to the course. Additionally, when considering the division of labor, an important element of CHAT, cogen shifts the roles that students and instructors perform in the course.

Increased accountability, motivation, and engagement

Participants found synchronous cogen meetings contributed to their engagement with the course. Students were assigned to small group discussion boards in the asynchronous Blackboard classroom and were expected to complete weekly discussion posts. Darryl talked about the small groups saying, 'I feel like…it's sort of like you can build connections like you would an in-person class better when you're doing it with a small number of people.' The synchronous small group meetings in AC took the personal connection to the next level. Jonah suggested this course was different from others because of the connection with peers. 'I will say that this is the first time I have actually had a facilitated meeting with others from class, and I think that I would be more likely to reach out to my peers for help now.'

Some described the engagement feeling as accountability and others as motivation. For example, Alicia described how the synchronous virtual meetings increased her engagement with the course. She said,

> I think that connects me with my team and my group a little bit more you know…connect a name with a face and probably will make the discussion a little bit more engaging.

Overall, students reported that the personal connections facilitated through the synchronous meetings contributed to their engagement with the course. Some students also reported engagement in the course because of increased accountability to their fellow students. Alicia described this sense of accountability:

> We know who we are and we see who has been posting [in our small group]. That is a way to keep everyone accountable. So, when someone doesn't post or hasn't posted in a couple days …

that is accountability to us as a small group. Unlike in the large discussion board when everyone is posting and you can be lost and it is easier to hide.

For another student, Bea, the word accountability did not reflect what she was feeling. She described a feeling of motivation to participate in the course:

> I think of it as more a sense of community. You know, the more you read their paper [sic], the more you read their responses… you feel closer to them. I never thought about, you know, people are gonna hold me accountable. It's just more like I really want to interact with these people because they have unique experiences to share.…I feel motivated to share more of myself of my stories because I feel like we know each other, much better than we would in a bigger group.

Although Bea did not feel like accountability was the way she would describe her experience, she did indicate that participating in the dialogues and establishing the personal connections in the small group positively shaped her engagement and participation in the course.

Participants felt that their involvement in the small groups, facilitated in part through the cogen process, contributed to their sense of engagement in the course. Next, we look to another finding on the role of cogen in an online course.

Changing roles

An important element of the CHAT framework is the division of labor. We noticed that the division of labor shifted as the roles of the typical classroom began to break down through cogenerative dialogues. Cogen, which is the process of involving students to take responsibility for shaping learning in the course, created a space where students could implement changes in the course. In cogen, students were not passive recipients of information but experts expected to contribute to the learning in the course. In a typical course, the instructor is seen as the expert and the students primarily as learners (Bondi 2011).

Justine detailed her reliance on the instructor for assistance in the form of stating how frustrated she gets when she does not get a response: 'I know that when I'm in a class and I have a question, and

I'm stuck on something I know that I'm going to get more frustrated until I can figure out what's going on.' As the course progressed, and students had experienced cogen and had time to build those personal connections, more evidence appeared of students relying on peers for support and guidance. Jessica noted going to her peers for clarification instead of the instructor. She said, 'knowing that people were going to respond I felt comfortable asking questions saying like what did you guys think about this, or what am I supposed to be getting from this?'

One group decided that providing peer feedback on drafts of their final papers would be useful to them. Maria expressed her excitement at the prospect of reading classmates' papers, 'I think it would expand our knowledge base and our perspective a little bit.' Several minutes later, the instructor asked if more feedback is needed before the final draft is due. Justine assured the instructor that no more is needed from her because she feels comfortable using the discussion board to post her issue to classmates and 'say "help! I don't know what I'm doing. I'm lost. I don't feel comfortable with what I'm writing." I think we feel comfortable enough in our group to be able to do that'. This is one example of how students shifted their roles from being primarily learners relying on the teacher to peers relying on each other as experts and supports.

Bryan and Carlos also noticed how the course was different from other courses in the ways that students participated with each other. They describe the high level and meaningful student–student interaction. Carlos expanded upon an idea Bryan offered about the course seeming more organic saying,

> There is more of an organic flow to [this course] where there is more dialogue and more contribution, you know. With other classes it is more task-oriented, and there is just interaction between you and the professor – basically with you and Blackboard.

As Carlos and Bryan described, the expectation communicated through cogen that students shape learning in the course had an effect on discussion. It positioned students as experts so that the students learned not just from the instructor but from each other's interpretations and experiences as shared within the small groups.

The contributions gained through shifting of roles not only was about sharing opinions and insights on content of the course, but

extended to providing general support for learning. At one point in a group's time asking clarifying questions and Susan cogen meeting, Gwen expressed she was taking up too much of the explained that it is part of their roles as group members to support each other's learning,

> I would say, Gwen…it's very important to all of us that you understand [what's going on in class]. To me, this is what these sessions – they're not only about talking about the material … But it's also about…a way for us to try to help you get through this piece…. So I think that we should take the time to do that and make sure that the class makes meaning for you.

This quote is an example of the possibilities that can come from utilizing cogen in the classroom. In this case, Susan wanted to provide support to others in her group. It became important to students to support each other and ensure the group members' success. Next, we will discuss the meaning of these findings for online learners and for the use of cogen in synchronous virtual spaces.

Discussion and implications

This study offers several insights into the possibilities for use of synchronous spaces, one of them being cogenerative dialogues. We will discuss our findings and implications of using cogenerative dialogues in the synchronous space to support engagement and shared wisdom among peers.

As described in the introduction and methodology sections, cogen is a process of students and instructors dialoguing about the course while it is in process so that they can optimize teaching and learning. During cogen, when students report how they are experiencing the course, the instructors can learn valuable information to support student needs. A by-product of this reporting is that students get to hear and reflect upon how they and other students are experiencing the course. Perhaps more importantly to the students, they get to see and/or hear each other and get to know each other in a different way than through asynchronous learning. Personal connections may bloom from this new mode of interaction which is not about demonstrating mastery of course content.

In the lead author's experience, when students meet in synchronous spaces to discuss content (e.g. lecture, presentation, and discussion), students are performing a primarily cognitive function such as memorization, integration, or evaluation of content they are hearing. Students may also be operating under the impression it is important to be correct and/or protect oneself for being found out as incompetent on a subject matter related to the course (Bondi 2011). Cogen is one way to shift discussion from content to students' needs, the process of learning, and the benefits and responsibilities of community building (Bondi 2013). Our data support that students were able to form more meaningful personal connections through the use of cogen, which lead to increased engagement. It is not entirely clear from these data why cogen had this effect. This is a topic for future study. One possibility is that the focus of cogen on (a) individual and group needs, (b) reactions to course content and process, and (c) possibilities for optimizing teaching and learning creates a different type of space and interactions. Participants reported this type of space fostered personal connections and community building better than typical types of student–student interaction in online courses.

Another implication of using cogen in an online course is that students described how it increased their motivation, accountability, and especially engagement. Engagement is a key element of research on effective teaching and learning (Harper and Quaye 2010). Through cogen, students can be integral in conceptualizing and implementing innovative approaches to their coursework and online pedagogy.

In addition to engaging students in the course material, cogen is one possibility for providing more wisdom and resources to the course. Instead of the dominant model of education where information is primarily on a one-way path from instructor to the students, when cogen is utilized students begin to understand themselves as contributors and creators of the teaching and learning process. Because the instructors have told them their perspectives are important in shaping what happens in the course, they are more likely to see how their participation matters. For example, students are asked to participate in making functional changes in the course (e.g. deciding what to post where and what assignments/ interaction might be useful) but they are also asked about how to have the most meaningful interactions with each other. This means that not only the instructor, but also many peers, are providing these types of supports. Again, experts on online learning like Palloff and Pratt (2003)

support the need for interaction, and our research suggests that co-gen can facilitate a higher level of interaction than some other more traditional methods.

Recommendations for practice

The main recommendation for practice from this study is to provide opportunities for non-content-related interaction in a synchronous place. Cogen is one format to use. For example, during a cogen meeting students were talking about the value they found in submitting a draft of their final paper, a literature review, for feedback prior to submitting the final paper. This conversation morphed into a discussion about how to write the paper and ultimately students began disclosing their questions and feelings associated with tackling the literature review. Experience of the lead author suggests that peer-facilitated meetings may drift to focusing on discussing course content thus groups may need facilitation by an instructor or teaching assistant (at least at first) to demonstrate a model for building personal connections.

Future research

This study provides a number of insights that lead to provocative questions for educators and course designers. As the lead author has written elsewhere (Bondi 2013), one of the challenges of conducting cogen is the perceived time commitment for the instructor. Although there are direct benefits to the instructor spending some synchronous time with students (i.e. answering questions, gaining a more complex sense of students), scheduling and attending small group meetings takes time. Additional research could explore sustainable ways for online instructors to conduct cogen. For example, would cogen be effective if facilitated by a teaching assistant or by students themselves? Additionally, this study suggests students take on a higher level of involvement in making the course meet their learning needs and supporting other students. Future research should explore the extent to which the experience of cogen extends beyond the immediate course and allows students to consider new types of roles in future courses and other learning environments.

Conclusion

This study supports previous findings about the needs of online learners, particularly their needs for interaction. The most significant contribution of this study is offering cogen as a format to use in synchronous spaces with graduate students. The student–student interaction in this manner contributes to the development of personal connections, which can increase students' motivation, accountability, and engagement. This study also opens the door for future research on the benefits of non-content-related interactions among students and between students and instructors.

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References

Abrami, P. C., R. M. Bernard, E. M. Bures, E. Borokhovski, and R. M. Tamim. 2011. "Interaction in Distance Education and Online Learning: Using Evidence and Theory to Improve Practice." *Journal of Computing in Higher Education* 23: 82–103. doi:10.1007/s12528-011-9043-x

Battin-Little, B. B., D. Passmore, and S. Schullo. 2006. "Using Synchronous Software in Web-based Nursing Courses." *Computers Informatics Nursing* 24 (6): 317–325.

Bondi, S. 2011. "Complicity with the Neocolonial Project in Education: A Deconstruction of Student Affairs Preparation Practices." Doctoral dissertation, Graduate Theses and Dissertations. Paper number 10460. http://lib.dr.iastate.edu/etd/10460

Bondi, S. 2013. "Using Cogenerative Dialogues to Improve Teaching and Learning." *About Campus* 18 (3): 2–8. doi:10.1002/abc.21117

Crotty, M. 1998. *Foundations of Social Research: Meaning and Perspective in the Research Process*. Thousand Oaks, CA: Sage.

Harper, S. R., and S. J. Quaye. 2010. *Student Engagement in Higher Education: Theoretical Perspectives and Practical Approaches for Diverse Populations*. New York: Routledge.

Hernández, N., M. González, and P. C. Muñoz. 2014. "Planning Collaborative Learning in Virtual Environments." *Media Education Research Journal Comunicar* (42). doi:10.3916/C42-2014-02

Hiltz, S. R., N. Coppola, N. Rotter, M. Toroff, and R. Benbunan-Fich. 2000. "Measuring the Importance of Collaborative Learning for the Effectiveness of ALN: A Multi-Measure." In Learning Effectiveness and Faculty Satisfaction: Proceedings of the 1999 Sloan summer workshop on Asynchronous Learning Networks (Vol. 1, 101), Olin College-Sloan-C.

Lather, P. 1986. "Issues of Validity in Openly Ideological Research: Between a Rock and a Soft Place." *Interchange* 17 (4): 63–84. doi:10.1007/BF01807017

Leont'ev, A. N. 1978. *Activity, Consciousness, and Personality*. Englewood Cliffs, NJ: Prentice-Hall.

Lincoln, Y. S., and E. G. Guba. 1985. *Naturalistic Inquiry*. Thousand Oaks, CA: Sage.

Martin, F., M. Parker, and B. Allred. 2013. "A Case Study on the Adoption and Use of Synchronous Virtual Classrooms." *Electronic Journal of e-Learning* 11 (2): 124–138.

Martin, F., M. Parker, and B. Oyarzun. 2013. "A Case Study on the Adoption and Use of Synchronous Virtual Classrooms." *Electronic Journal of E-learning* 11 (2): 124–138.

Maxwell, J. A. 2013. *Qualitative Research Design: An Interactive Approach*. Thousand Oaks, CA: Sage.

McBrien, J. L., P. Jones, and R. Cheng. 2009. "Virtual Spaces: Employing a Synchronous Online Classroom to Facilitate Student Engagement in Online Learning." *The International Review of Research in Open and Distance Learning* 10 (3): 1–17.

Merriam, S. B. 2002. *Qualitative Research in Practice: Examples for Discussion and Analysis*. San Francisco, CA: Jossey-Bass.

Merriam, S. B. 2009. *Qualitative Research: A Guide to Design and Implementation*. San Francisco, CA: Jossey-Bass.

Miles, M. B., and A. M. Huberman. 1994. *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage.

Moore, M. 1993. "Theory of Transactional Distance." In *Theoretical principles of distance education*, edited by D. Keegan, 22–38. New York, NY: Routledge.

Ng, K. C. 2007. "Replacing Face-to-Face Tutorials by Synchronous Online Technologies: Challenges and Pedagogical Implications." *The International Review of Research in Open and Distance Learning* 8 (1). http://www.irrodl.org/index.php/irrodl/article/view/335/764

Palloff, R. M., and K. Pratt. 2003. *The Virtual Student: A Profile and Guide to Working with Online Learners*. San Francisco, CA: Jossey-Bass.

Palmer, P. J., and A. S. M. Zajonc. 2010. *The Heart of Higher Education: A Call to Renewal. The Jossey-Bass Higher and Adult Education Series; Variation: Jossey-Bass Higher and Adult Education Series*. San Francisco, CA: Jossey-Bass.

Rendón, L. 1994. "Validating Culturally Diverse Students: Toward a new Model of Learning and Student Development." *Innovative Higher Education* 19 (1): 33–51. doi:10.1007/BF01191156

Soo, K.-S., and C. J. Bonk. 1998. "Interaction: What Does It Mean in Online Distance Education?" Paper presented at the ED-MEDIA/ED-TELECOM 98 world conference on Educational Multimedia and Hypermedia & World Conference on Educational Telecommunications (10th), Freiburg, Germany. ERIC Document ER428724.

Stith, I., and W. Roth. 2010. "Teaching as Mediation: The co-Generative Dialogue and Ethical Understandings." *Teaching and Teacher Education* 26: 363–370. doi:10.1016/j.tate.2009.09.008

Thurmond, V., and K. Wambach. 2004. "Understanding Interactions In Distance Education: A Review Of The Literature." *International Journal of Instructional Technology and Distance Learning*, 1(1): 9–25.

Tobin, K., and W. Roth. 2006. *Teaching to Learn: A View from the Field*. Rotterdam: Sense Publishers.

West, E., and P. Jones. 2007. "A Framework for Planning Technology Used in Teacher Education Programs That Serve Rural Communities." *Rural Special Education Quarterly* 26 (4): 3.

Xie, K., N. C. Miller, and J. R. Allison. 2013. "Toward a Social Conflict Evolution Model: Examining the Adverse Power of Conflictual Social Interaction in Online Learning." *Computers & Education* 63: 404–415. doi:10.1016/j.compedu.2013.01.003