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CAPTURING SUCCESS! USING REMOTE OBSERVATION TECHNOLOGY FOR TEACHER CANDIDATE SUPERVISION: WHAT DOES THE RESEARCH SAY?

In response to the shortage of special education teachers in rural areas, many teacher preparation programs are providing supervision to pre-service teachers via distance education technologies. Collins (1997) states that distance education is an option for rural educators who live at a distance from institutions of higher education (IHEs) including isolated geographic areas and/or areas of often inclement weather. Moreover, any student may have time constraints (e.g., job requirements, family responsibilities, traffic congestion in large cities) when seeking learning options (Spooner, Knight, Lo, & Wood, 2007). Collins, Schuster, and Grisham-Brown (1999) state distance education technology is growing rapidly as a means to deliver coursework, hold conferences, provide professional development, and in-service opportunities. One student wrote the following:

> [Technology] is a way that many of us can continue our education that is both demanded and desired. If this program was not available, I cannot foresee how hard and long it would be to only go to school in the summer. Distance learning allows you the freedom to choose what is the best schedule that fits 'your' individual needs (Collins, 1997, p. 244).

A variety of technologies are available for course delivery (Moore & Anderson, 2003), with programs experimenting with technologies (e.g., webcams, interactive video, podcasts, Wikis, etc.,) to provide support of clinical experiences (Jung, Galyon-Keramidas, Collins & Ludlow, 2006). Studies (e.g., Alger & Kopcha, 2012; Hager, Baird, & Spriggs, 2012; Koch, 2007) have shown evidence of remote observation as being beneficial to all involved, especially instructors who gain time that would have been spent in transit (Gruenhagen, McCracken, & True, 1999). Furthermore, observations may require a full day of the supervisor's time, as well as mileage and per diem costs (Hager et al., 2012).

Remote Observation Systems across IHEs

Several IHEs use synchronous technologies to provide supervision to students limited by geographical location or personal schedules (see Table 1). Technologies include web conferencing software (e.g., Adobe Connect Pro; Hudson, Knight & Collins, 2012) and Bluetooth headsets to provide live feedback to teachers during observation (e.g, Dymond, Renzaglia, Halle, Chadsey, & Bentz, 2008; Rock et al., 2009). For example, three departments (i.e., Moderate to Severe Disabilities Program [MSD], Distance Learning Programs [DLP], and Distance Learning Networks [DLN]) at the University of Kentucky (UK) collaborated to develop a system of remote observation for student teachers (Hager et al., 2012). Adobe Connect Pro™ in conjunction with a TrackerPod® was used to pan, tilt, and zoom to observe. They used a

Palantronics Bluetooth USP headset to communicate with the teacher during and following the lesson. Typical observation time for on-site visits took an entire day, however, remote observation decreased it to a half day or less. Currently, other colleges at UK are now using the system.

At Penn State University (PSU), researchers examined the effects of a university supervisor providing five, pre-service special education teachers immediate feedback while teaching using a Bluetooth headset and web conferencing software (Scheeler, McKinnon, & Stout, 2012). A multiple baseline design across participants was used to assess the effects of the immediate feedback on the percentage of three-term contingency (TTC) trials. They selected the TTC trials because they have been predictors of effective instruction (Albers & Greer, 1991). TTC trials are simple learning units comprised of an antecedent (first term), student response (second term), and feedback to the student (third term). Social validity data were collected by questionnaire to assess the acceptability of the intervention. Results indicated that use of video conferencing and providing immediate feedback (e.g., Bluetooth) was effective in increasing the targeted technique across all 5 pre-service teachers. Criteria were met with an average of 90% or more completion over three consecutive sessions. Social validity results suggested that all participants felt comfortable wearing the Bluetooth, it was not distracting, and they enjoyed receiving immediate feedback.

San Diego University (SDU) also employed distance education technology to provide supervision (Alger & Kopcha, 2000). Concerned that their traditional model of supervision was out-of-date and unresponsive, SDU piloted an online field experience. The SDU remote observation model included the use of: (a) Moodle (a course management system), (b) web cams for video conferencing, and (c) video recorders to record teaching. Cooperating teachers were trained to provide observations, with student teachers sending in a recorded video of a lesson. Although this does not represent a live, remote observation model, the authors noted benefits of increased communication between all stakeholders.

Another example of remote supervision occurred at North Georgia College and State University (NGCSU). NGCSU used the Georgia Statewide Academic and Medical System (GSAMS) that allowed live, interactive, two-way video conferencing to supervise 25 student teachers (Gruenhagen, et al., 1999). The State of Georgia installed technology across 400 sites (e.g., private colleges, P-12 public school classrooms, rural development centers), including 16 sites with two-way video conferencing. Classrooms had two video cameras, document cameras, microphones, and fax. Authors noted that the public schools welcomed the technologies and were pleased to receive student teachers in their rural areas.

At California State University (CSU), Koch (2007) described how their online program to train rural special educators to teach social skills was enhanced by remote supervision. Many of the students were at a geographical distance, but students had synchronous and asynchronous class meetings with training videos and chat rooms to communicate with peers and the instructor. The remote observation package included both web conferencing software and headsets for real-time coaching from the remote trainer. Students were provided with follow-up supervision meetings and discussions through virtual office or the course management system. Students involved in this program at CSU highly rated both the supervision and course effectiveness.

In two studies by Dymond (2008) and Rock et al. (2009), from the University of Illinois-Champaign-Urbana and Alabama, respectively, faculty used synchronous learning environment technologies to observe special education student teachers via video conferencing and "bug-in-ear" Bluetooth systems. Dymond (2008) determined the efficacy of a two-way videoconferencing system to aid in the supervision. Inter-observer agreement (IOA) and reliability looked at the effectiveness of the video conferencing system vs. face-to-face observations. Results of the IOA ranged from 75% to 92% (mean of 86%), and suggested the onsite and remote observers saw the same instructional behaviors using the Skill Monitoring Checklist. In Rock et al. (2009), investigators also used Bluetooth technology to observe 17 teachers. Rock et al. used more than one form of technology for observations. In this study, investigators used a web-cam, Bluetooth headset, and Skype. The university supervisor gave instructions/encouragement via the Bluetooth headset while observing on the video camera. The results indicated an increase in praise statements, high access to instructional practices, and re-directs.

At Utah State University, Falconer and Linguaris/Kraft (2002), also used a remote observation system for 2 student teachers in special education and conducted a qualitative analysis to determine the effectiveness of their two-way audio/video system. The study examined the extent that two-way conferencing met the needs of the student teacher, supervisor, and cooperating teachers. For this study, researchers set up two classrooms (both located approximately 285 miles from the campus) with a computer, Internet access, a modem, and an audio/video system. Results were positive, with students reporting the technology enabled them to discuss their portfolios, show graphs, conference with the instructor, and do everything that would typically be required with traditional supervision experiences.

Using distance education technologies for course remote supervision has many advantages for IHEs. Distance education can help to: (a) increase enrollment; (b) provide access to a new population of learners; and (c) enhance quality of teaching and learning (Kearsly 2000). Helping rural educators have better access to degree programs may help to reduce the problem of teacher shortages, retention, and attrition (Ludlow, 2006; Larwood, 2005). Moreover, the use of remote supervision in rural areas can reduce travel time and costs, as well as provide increased support for all involved (e.g., Alger & Kopcha, 2009; Hager et al., 2012). For IHEs to be able to keep up with the increasing demand of special education teachers and to increase and sustain high enrollment, IHEs must embrace technology. Spooner et al. (2007), stated that the University of North Carolina-Charlotte found that by transforming their traditional Moderate and Severe Disabilities program to a synchronous online program, enrollment increased from 5 to 33 students in 1 year, with the geographic range increasing by 13 counties.

According to Prensky, "Today's students are no longer the people our educational system was designed to teach" (p. 1). They have proficiency and the ability to use new technology (Aviles, Phillips, Rosenblatt, & Vargas, 2005). Moreover, IHEs need to become more cognizant of students' growing use and dependency on technology (Aviles et al., 2005; Bore, 2008). To meet the diverse student population who prefer to attend courses via distance education, IHEs must find ways to motive and support faculty to develop and teach online courses (Maguire, 2005).

References

Albers, A. E., & Greer, R. D. (1991). Is the three-term contingency trial a predictor of effective instruction? *Journal of Behavioral Education, 1,* 337 – 354.

Alger, C., & Kopcha, T. J. (2010). Technology supported cognitive apprenticeship transform the student teaching field experience: Improving the student teaching field experience for all triad members. *The Teacher Educator, 46*, 71-88.

Aviles, K., Phillips, B., Rosenblatt, T., & Vargas, J. (2005). If higher education listened to me. *EDUCAUSE Review, 40*, 16-28.

Bore, J. C. K. (2008). Perceptions of graduate students on the use of web-based instruction in special education personnel preparation. *Teacher Education and Special Education, 31,* 1-11.

Collins, B.C. (1997). Training rural educators in Kentucky through distance learning: A model with follow-up data. *Teacher Education and Special Education*, *20*, 234-248.

Collins, B.C., Schuster, J., & Grisham-Brown, J. (1999). So you're a distance learner? Tips and suggestions for rural special education personnel involved. *Rural Special Education Quarterly*, *18*, 66.

Dymond, S. K., Renzaglia, A., Halle, J. W., Chadsey, J., & Bentz, J. L. (2008). An evaluation of videoconferencing as a supportive technology for practicum supervision. *Teacher Education and Special Education, 31,* 243-267. doi:10.1177/0888406408330645

Falconer, K. B., & Lignugaris/Kraft, B. (2002). A qualitative analysis of the benefits and limitations of using two-way conferencing technology to supervise preservice teachers in remote locations. *Teacher Education and Special Education*, *25*, 368-384. doi:10.1177/088840640202500406

Gruenhagen, K., McCracken, T. & True, J. (1999). Using distance education technologies for the supervision of student teachers in remote rural schools. *Rural Special Education Quarterly, 18*, 58-65.

Hager, K. D., Baird, C. M., & Spriggs, A. D. (2012). Remote teacher observation at the University of Kentucky. *Rural Special Education Quarterly, 31*, 3-8.

Hudson, T. M., Knight, V., & Collins, B. C. (2012). Perceived effectiveness of web conferencing software in the digital environment to deliver a graduate course in applied behavior analysis. *Rural Special Education Quarterly*, *31*, 27-39

Jung, L.A., Galyon-Keramidas, C., Collins, B., & Ludlow, B.L. (2006). Distance education strategies to support practica in rural settings. *Rural Special Education Quarterly, 25*, 18-24.

Kersley, G. (2000). *Online education: Learning and teaching in cyberspace.* Belmont, CA: Wadsworth.

Koch, S. (Fall 2007). Training rural special educators online to teach social skills. *Rural Special Education Quarterly, 26*, 16-20

Larwood, L. (2005). A promising practice: Low incidence teacher education in rural and remote California. *Rural Special Education Quarterly, 24*, 25-29.

Ludlow, B. L., Collins, B. C , & Menlove, R. R. (Eds.) (2006). *Online instruction for distance education delivery: Preparing special educators in and for rural areas.* Monograph by the American Council on Rural Special Education. Canada: Trafford.

Maguire, L. L. (2005, March 15). Literature Review – Faculty Participation in Online Distance

Education: Barriers and Motivators. Retrieved from Online Journal of Distance Learning Administration: http://www.westga.edu/~distance/ojdla/spring81/maguire81.htm

Moore, M. G. & Anderson, W. G. (2003). *Handbook of Distance Education.* Mahwah, NJ: Erlbaum.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon, 9*, 1–2.

Rock, M. L., Gregg, M., Thead, B. K., Acker, S. E., Gable, R. A., & Zigmond, N. P. (2009). Can you hear me now? Evaluation of an online wireless technology to provide real-time feedback to special education teachers-in-training. *Teacher Education and Special Education, 32*, 64-82.

Scheeler, M. C., McKinnon, K., & Stout, J. (2012). Effects of immediate feedback delivered via webcam and Bug-in-Ear technology on pre-service teacher performance. *Teacher Education and Special Education, 35*, 77-90.

Spooner, F., Knight, V., Lo, Y., & Wood, W. M. (2007). Preparing teachers in severe disabilities across wide geographical areas using videoconferencing technology. *Rural Special Education Quarterly, 26*, 16-25.

Table 1

Remote Observation Technology Used Across Institutes of Higher Education for Supervising Teacher Candidates

Authors	Year	Subjects and IHE	Research Design	Dependent Variable	Independent Variable	Technology	Results
Alger & Kopcha	2010	High School General Education Certification San Diego State University	Qualitative, Constant-Comparative Method	Use of technology for field supervision	Did technology enhance or distract from field experience?	Moodle™	6 out of 8 participants expressed that the technology enhanced the field experience
Binner Falconer & Lingugaris/ Kraft	2002	Special Education Practicum students, student teachers, cooperating teachers, paraprofessional, and university supervisor; Utah State University	Qualitative analysis of supervisor's field notes and opinions of preservice and mentor teachers	Perceptions of audio/video conferencing technology; supervisor's field notes taken during and following video conferences and observation sessions	Two-way conferencing technology for observation of and feedback provided to practicum and student teachers	Sorenson EnVision audio/video conferencing system	Observational benefits: access to feedback about assignments and instruction provided by practicum and student teachers; Communication benefits: access to face-to-face communication; communication enhanced in terms of frequency, immediacy; Limitations: problems with hardware and software; overcoming reactions to being on camera
Dymond, Renzaglia,	2008	Special Education	Interrater reliability	Use of technology	Can a remote	Polycom View Station SP™	There were interrater reliability scores of 75%-

Author	Year	Setting	Type	Focus	Question	Technology	Findings
Chadsey, & Bentz		Supervision University of Illinois, Urbana-Champaign	between onsite and off- site supervisors on the Skill Monitoring Checklist.	for field supervision	supervisor using technology observe the same skills as an onsite supervisor		92% with a mean of 86% on the Skill Monitoring Checklist
Gruenhagen, McCracken, & True	1999	Student Teacher Observation North Georgie College and State University	Description of process and technology used	Use of technology for field supervision	What is North Georgie College and State University using to supervise student teaching in remote rural schools	Georgia Statewide Academic and Medical System (GSAMS) a 2-way video conferencing system, wireless microphone	A description of pre-conference teaching, process of children entering classroom set up with GSAMS technology and post conference teaching There have been 25 students use this technology and the researchers "believe" this method is effective.
Hagar, Baird, & Spriggs	2013	Moderate and Severe Disabilities Special Education Certification Program University of Kentucky	Description of Remote Observation Kits	Use of technology for field supervision	Can use of technology improve supervision and feedback	Remote Observation Kits that include: Microsoft Lync™, Tracker Pod ™ with Logitech HD C920™ camera, Plantronics Voyager Pro UC™ Headset Pro, Ape Case™ Medium Hard case, D-Link	Supervision and Feedback has improved.

4 Port USB Hub,
Small Flash Drive

Koch	2007	Online Supervision of Special Educators teaching social skills	Rating Scale of course effectiveness and self-assessment of competence of skills taught	Description of use of Web camera	Does the use of web cameras	Web Cam Wireless headset	Description of pilot use of web cameras to receive real-time coaching with wireless headset. Using a Likert scale where 1 was lowest and 7 highest, participants gave an average rating of 6.44 on course effectiveness and 5.89 on self-assessment of competence of skills taught in course.
Rock, Gregg, Thead, Acker, Gable, & Zigmond	2009	Teachers enrolled in a field-based graduate special education teacher preparation program; The University of Alabama, Old Dominion University, and University of Pittsburgh	Mixed methods: Quantitative & Qualitative analyses using observation of videotapes to evaluate instructional practices, , student engagement, supervisor feedback	Immediate feedback to teachers using remoteBug-in-Ear (BIE) technology	Can advances in technology enhance the capacity of traditional BIE? What is the effect of technology on participants and teacher and student behavior/ learning?	Enhanced online BIE technology; Wide angle web camera, Bluetooth headset, Skype	Enhanced BIR can be successfully implemented; Increased use of praise statements, high-access instructional practices (e.g., choral responding), and teachers' use of behavior redirects; no effect on participants' use of reprimands; Increased student engagement

				and participant responses			
Scheeler, McKinnon, & Stout	2012	Five Special education preservice teachers in practicum placements	Multiple baseline across participants	Percentage of three-term contingency trials (TTC: teacher-presented antecedent, student response, and specific feedback) completed by the teacher	Does immediate technology supported feedback increase a specific teaching technique by preservice teachers?	Webcams and Bluetooth Bug-in-Ear	Immediate feedback provided through webcam and BIE increased the completion of TTC trials participants