PROMISING PRACTICES IN E-SUPERVISION: EXPLORING GRADUATE SPEECH-LANGUAGE PATHOLOGY INTERNS' PERCEPTIONS

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ABSTRACT

E-supervision has a potential role in addressing speech-language personnel shortages in rural and difficult to staff school districts. The purposes of this article are twofold: to determine how e-supervision might support graduate speech-language pathologist (SLP) interns placed in rural, remote, and difficult to staff public school districts; and, to investigate interns' perceptions of in-person supervision compared to e-supervision. The study used a mixed methodology approach and collected data from surveys, supervision documents and records, and interviews. The results showed the use of e-supervision allowed graduate SLP interns to be adequately supervised across a variety of clients and professional activities in a manner that was similar to in-person supervision. Further, e-supervision was perceived as a more convenient and less stressful supervision format when compared to in-person supervision. Other findings are discussed and implications and limitations provided.

Key words: E-supervision, graduate student, speech-language pathology, student teaching

INTRODUCTION

According to the American Speech-Language-Hearing Association (ASHA), applicants for national certification in speech-language pathology must complete a graduate course of study and a minimum of 400 hours of supervised clinical experiences (ASHA, 2005). In order to obtain the required amount and type of supervised clinical experiences, graduate programs place students in university clinics and at off-campus practicum sites (e.g., school districts, hospitals, nursing homes) with professional SLP supervisors. Given the limited number of qualified SLP supervisors and a reduced availability of off-campus clinical placements, higher education institutions and ASHA are concerned that graduate SLP students will not be able to meet the practicum requirements for national certification (ASHA, 2007; Dudding & Justice, 2004).

The use of technology is recommended to address some of the challenges that are faced by graduate programs (Hallett, 2002; Robinson, Creaghead, Hooper, Watson, & McNeilly, 2007). More specifically, graduate programs are encouraged to use desktop videoconferencing technology to inexpensively e-supervise graduate students who are placed in remote off-campus practicum settings (Dudding, 2009). E-supervision refers to the use of videoconferencing technology to provide real-time clinical supervision. Although the e-supervisor is physically housed in a location that is different than the supervisee, the videoconferencing technology allows the e-supervisor to observe a variety of professional activities. During these observations, the e-supervisor has the ability to see, hear, and evaluate the supervisees' performance during the delivery of interventions, assessments, and other professional activities.

E-supervision extends clinical and employment opportunities into remote, rural, and hard-to-fill locations where an onsite profession supervisor might not be available (Wood, Hargrove, & Miller, 2005). Moreover, it allows access to desirable clinical internships where supervision is either limited or non-existent (ASHA, 2008). E-supervision gives higher education institutions and employers the opportunity to minimize supervisors' travel time and reduce associated transportation costs (e.g., mileage reimbursement) while providing a valuable and necessary service to graduate students and partnering stakeholders (i.e., state SLP licensure boards, participating school districts, and universities) (Dudding & Justice, 2004). For the busy supervisor, e-supervision allows graduate students to be supervised without sacrificing time for travel (Olson, Russell, &

White, 2001) and maximizes the focus on students' practice. All in all, the cost of the videoconferencing technology and equipment is often offset by the increase in the e-supervisor's productivity, expanded access to a broader spectrum of employment and externship sites, and reduction in travel time and associated costs (Dudding & Justice, 2004).

Going back as far as 2003, the Ohio Department of Education (ODE) Office of Exceptional Children identified a persistent lack of qualified school-based SLPs in rural and hard-to-fill school districts. Initially, the state legislature considered licensing bachelors level speech-language assistants under the supervision of full-time certified SLPs to address this shortage; however, the statewide committee of stakeholders did not feel assistants were a viable solution (Boswell, 2007). In order to respond to persistent SLP shortages, ODE instead established a funded collaboration with the Ohio Master's Network Initiatives in Education (OMNIE) and seven Ohio universities. Through this collaboration, a specialized graduate SLP internship program was created (i.e., the SLP Intern Model Graduate Program), which aimed to graduate 80-100 graduate SLPs interns who could be hired by school districts to fill persistent vacancies. As part of the SLP Intern Model Graduate Program and following the completion of the initial year of pediatric coursework and clinical practicum, these graduate SLP interns were hired by school districts as the primary practicing professionals. Each graduate SLP intern provided interventions and diagnostics to no more than 50 children who had, or were at risk for, communication impairments. The interns were supervised at least 25% of the time during the delivery of interventions and diagnostics and given credit for completing their universities' student teaching requirement. Once employed by the district, the interns also completed their medical practica and online adult-focused coursework in the evenings, on the weekends, and over the summer.

OMNIE required that school districts recruit and hire supervisors for their newly hired graduate SLP interns. In theory, these district-based supervisors would be well-prepared and familiar with the needs of the school districts and able to supervise and fully support the graduate SLP interns. However, shortages in available supervisors for these districts presented a new challenge – how could these graduate SLP interns, each assuming the role of a professional, be supervised and supported in their preparation without the availability of supervisors? To address the shortage of qualified supervisors, the ODE proposed using technology to extend supervision into school districts where the interns were placed. E-supervision was born out of a need to connect graduate SLP student interns with the supervision that was mandated by the state licensing board and ASHA, and to provide the support that was required to ensure the interns succeeded in their new roles in high-need school districts.

In a time of increasing need for SLPs, we contend that e-supervision offers promising practices and opportunities to support the preparation of future professionals while also meeting the need of school districts in which hiring a SLP has been a challenge.

EQUIPMENT AND VIDEOCONFERENCING TECHNOLOGY FOR E-SUPERVISION

Prior to the start of the school year, each e-supervised graduate SLP intern and e-supervisor received a laptop computer, microphone, sound bar speaker, and webcam. The school district technology coordinator and university research assistant were used to support the technology needs of the project. The web camera was the Logitech Quick Cam Orbit AF, which had two megapixels with motorized tracking, an autofocus lens system, a base, and a 9" stand. The microphone was the Logitech USB Desktop Microphone, which had a noise-cancelling microphone, advanced digital USB, and an illuminating power switch. The speakers were Dell PS511 USB Internal Speakers with a hard shell carrying case, wired connectivity, USB power source, and PC multi-media speaker. The Dell Latitude E6410 laptops were used, which were password protected and encrypted. Each laptop had anti-virus software installed. Skype was used, which offered free Skype-to-Skype video calling, instant messaging, screen sharing, and additional encryption.

E-SUPERVISORY PROCEDURES

The first year of the OMNIE e-supervision project began in August 2010 and ended June 2011. The second phase started in August 2011 and ended June 2012. During the first week of each school year, the e-supervisors travelled to their interns' school districts to help with the beginning of the school year preparations (e.g., develop the intervention schedule, review district procedures, and discuss children on the caseload). During this day long visit, the e-supervisors communicated their supervisory expectations to the graduate SLP interns. Once the schedule was created, interventions and diagnostics started, and e-supervision began. The e-supervisor observed and supported the intern at a distance from the e-supervisor's home.

As the school year progressed, the graduate SLP interns provided up to 16 hours of 1:1, small group, and large group interventions and diagnostics (e.g., screening, assessment) to the children on their caseload. The e-supervisors directly supervised using Skype at least 25% of the time (i.e., 4 hours per week). In addition, the e-supervisors indirectly supervised/mentored the graduate SLP interns a minimum of 2.5 hours a week. Indirect supervision/mentoring took many forms, depending upon the needs of the interns. The 2.5 hours

a week were designed to allow the e-supervisors the time to review special education paperwork, observe meetings with staff and parents, discuss difficult clinical scenarios, and hold pre- and post-observation conferences with the graduate SLP interns.

Supervisory Process

ASHA has recognized supervision as a distinct area of professional practice since 1985 (ASHA, 1985). The Continuum of Supervision Model, developed by Jean Anderson (1988), was the supervisory process used in this project. The process of supervision was dynamic, and it changed based on the interns' needs. Anderson explained that a supervisee (i.e., graduate SLP intern) moved along a continuum from initially being dependent to being completely independent of the supervisor. The process of supervision had three stages: evaluation-feedback, transitional, and self-supervision (Anderson, 1988). These stages were based on the individual graduate SLP interns' skill level within each clinical competency. As the intern developed clinical competency, the amount of supervisory dominance decreased and the amount of intern participation and independence increased (McCrea & Brasseur, 2003).

At the beginning of the project and during the evaluation-feedback stage, the supervisors were dominant and held a direct and active style of supervision. The supervisors took on this role because the graduate SLP interns were just entering a new employment setting and encountering many new types of disorders and clinical situations (McCrea & Brasseur, 2003). The supervision process progressed to the transitional stage after the interns demonstrated some clinical competency on a skill. During this stage, the supervisors and interns participated in joint problem-solving and joint deliberation around a skill or competency (Anderson, 1988). The interns were not independent (e.g., to conduct articulation therapy; complete special education paperwork), yet they demonstrated the ability to move in that direction. The interns at this stage began to evaluate their clinical behaviors, plan future actions, and modify their behaviors during interventions, diagnostics, meetings, and other professional endeavors. Later in the transitional stage, the graduate SLP interns began to interact with their supervisors collaboratively and collegially. Again, the goal was independence and self-supervision. The final stage was self-supervision. During this stage, the graduate SLP interns were able to "accurately analyze their clinical behaviors and its outcome and to alter it based on that analysis" (McCrea & Brasseur, 2003, p. 21). The interns were no longer dependent on their supervisor for constant analysis and feedback about their clinical work. For this project, the supervisors continued to observe the interns and mentor them, but the interactions were more consultative in nature. Graduate SLP interns at this self-

supervision stage were able to identify their own strengths and weaknesses, modify their clinical behaviors, seek assistance as needed, and locate knowledge when appropriate (McCrea & Brasseur, 2003). The supervisors no longer needed to provide constant support and feedback to the graduate SLP interns as was done in the earlier stages of supervision.

University Supports for E-supervisors and Graduate Students

A password protected e-supervision website was created to support the direct and indirect e-supervision and mentorship. The website contained summaries of interventions, resources on disorders, example special education forms, information on assessments and screenings, adapted therapy materials, and developmental milestones. Hyperlinks were also provided that pertained to augmentative and alternative communication, electronic books, and interactive therapeutic websites. Finally, a materials exchange was developed to enable interns and e-supervisors to share information with each other.

The grant manager also provided consultation to the e-supervisors and graduate SLP interns. E-supervisors contacted the manager for direction on how to proceed with difficult clinical problems and special education issues. With technology in place, supports organized, and professionals on-hand to respond, internships began in high-need districts with the supervision and mentorship of supervisors at a distance. E-supervision, a relatively new practice in the field of speech-language pathology, offered promising possibilities for practice and service.

Purpose

Designed to be cost-effective, responsive to the needs of various stakeholders, and productive for graduate SLP interns preparing for their professional licensure, the pilot OMNIE e-supervision project was developed and funded by the Ohio Department of Education. E-supervision utilized desktop videoconferencing technology to extend supervision to school districts that were unable to secure a state licensed and nationally certified SLP supervisor. Primarily employing part-time supervisors (usually, non-practicing or retired licensed and certified SLPs) instead of full-time practicing SLPs (with caseloads of their own) was thought to support more flexibility in scheduling, dealing with technology issues, and responding to last-minute needs by the intern.

For the purposes of this paper, two questions guided our inquiry into the possibilities and challenges of e-supervision. First, in what ways can e-supervision support graduate SLP interns placed in rural, remote, and hard-to-staff public school districts? And, what are

graduate SLP intern students' perceptions of in-person supervision compared to e-supervision?

METHODS

Employing a mixed methodology, surveys, supervision documents and records, and interviews were collected and used to explore answers to the two guiding research questions. Mixed methodology research allowed for a deeper and richer understanding of the results (Johnson, Onwuegbuzie, & Turner, 2007) and enabled researchers to look across data sets for trends, themes, and emergent ideas. Moreover, using multiple data sets allowed for triangulation of data to better illustrate trends and support emerging knowledge claims (Flick, 2009).

DATA COLLECTION AND ANALYSIS

An online survey was used to collect data from the graduate SLP interns who participated in the OMNIE SLP Intern Model Graduate Program. The survey instrument development followed a four step process (Richardson, McLeod, & Dikkers, 2011). First, the lead researcher and two e-supervisors created the initial set of questions and perceptions statements for the pilot OMNIE Supervision Survey. Second, the pilot survey was distributed to three SLP graduate students in order to gain content and format suggestions. After their suggestions were incorporated into the next draft, the pilot survey was re-administered to the three SLP graduate students. No further suggestions or modifications were recommended, and the final draft of the OMNIE Supervision Survey was emailed to all OMNIE graduate SLP interns who received either in-person or e-supervision. The survey provided valuable insights about the OMNIE program for project evaluators and offered initial insights to participants' perceptions and experiences in the program.

Additionally, each e-supervisor completed weekly summaries of their supervisory activities. On these weekly data sheets, the e-supervisors confirmed that direct supervision was provided, detailed which clinical activity was observed (e.g., pullout interventions, assessment), described indirect supervision/mentoring activities, documented any technological problems, and requested any additional support that was needed for their intern. These data sheets were turned into the grant manager on a weekly basis and were used to confirm supervision was provided in accordance with the Ohio Board of Speech-Language Pathology and Audiology Student Permits and ASHA requirements. See Appendix A for a copy of the data sheet.

Finally, all seven of the graduate SLP interns who were involved in the e-supervision project were each asked to participate in interviews about their perceptions of and experiences with e-supervision. Invitations were

sent electronically to the interns and requested their participation in the interview process. The interns were individually interviewed by a trained research assistant and recorded using a voice recorder. The interviews were transcribed by a trained research assistant and analyzed using Dedoose© online data software. See Appendix B for the standardized interview questions.

Upon completion of data collection, analysis began. Initial survey results were calculated to determine trends in responses and also analyzed to uncover similarities and differences among interns being supervised in-person and e-supervised. Documents and other programmatic records were considered in an effort to ensure that all students received adequate and appropriate supervision per the state licensure board and national accrediting agency. Finally, interview transcriptions were coded and organized to identify emergent themes, trends, and (in) consistencies in and among participants in e-supervision. Each data set yielded differing information; however, taken together, offered a fuller picture of the experiences of graduate SLP interns who participated in the OMNIE project, and more specifically, e-supervision.

PARTICIPANTS

At the time of this study, there were 100 graduate SLP interns enrolled in or already graduated from the OMNIE SLP Intern Model Graduate Programs. From those 100 interns, seven were purposively selected to participate in the e-supervision project. These interns were selected because they had accepted employment in school districts where no qualified in-person supervisors could be hired by the district.

In an effort to compare experiences and perceptions of e-supervision and in-person supervision, the entire population of graduate SLP interns (n=100) was invited to participate in the survey portion of the study. The interns' email addresses were obtained from a publicly available directory and an Internet search. At the close of the web-based survey, 6 e-supervised and 46 in-person supervised graduate SLP interns fully responded. There was a 52% response rate overall, which was well above the recommended response rate range (i.e., between 20% and 24%) for a web-based survey (Sax, Gilmartin, & Bryant, 2003). When the response rate was broken down by type of supervision, the data showed 86% of the e-supervised and 49% of the in-person supervised graduate SLP interns responded. Inaccurate emails, full inboxes, changes in employment, and other unknown delivery failures restricted the sample.

In addition to the web-based survey, the seven e-supervised graduate SLP interns were selected to participate in one-on-one interviews about their perceptions of e-supervision. At the end of the interview portion of the study, five e-supervised interns consented and fully participated. The remaining two e-supervised

interns indicated they were not able to participate in the interviews due to scheduling conflicts and excessive workload issues.

Finally, all documents and records associated with e-supervision and intern experiences were collected and analyzed. Throughout the course of the study, the e-supervisors submitted weekly summaries to the grant manager. The data sheets were intended to be used to determine if supervision was provided in accordance with the state board and ASHA requirements. These existing records were analyzed for data related to the amount and type of supervisory activities and evidences of technological problems. Records for all seven graduate SLP interns involved in e-supervision were analyzed as part of this research.

Results

Using the survey to establish an initial understanding of OMNIE SLP Graduate Interns' perceptions, document analysis and interviews further revealed important insights for using e-supervision to support graduate SLP interns. Moreover, data suggest that e-supervision is largely as effective, if not more effective in some respects, than in-person supervision based on interns' experiences in the OMNIE e-supervision project.

E-Supervision Delivery and Implementation

In order to assess graduate SLP interns' perceptions about the effectiveness of e-supervision, data from surveys, interviews, and supervisor data sheets were analyzed. On the survey, 83% of the e-supervised graduate SLP interns agreed that their OMNIE internship was a positive experience. One respondent stated that e-supervision "allowed for therapists to supervise in rural areas where there might not be supervisors available or therapists that would be willing to do that." The majority (80%) of e-supervised SLP interns agreed they would be willing to be e-supervised again in the future. The remaining intern indicated that she had no preference because she had positive experiences with both in-person and e-supervision. The intern said, "I think it's a great way to be supervised; I love it." In addition to being positive about their e-supervision experiences, 60% of the interns remarked that they believed that they received just as much, if not more, than their peers who were supervised in-person. An e-supervised graduate SLP intern explained:

> I thought initially it was stressful and not a good idea. But looking back on it, I learned as much with this supervisor as I had with any others, and I would say more than I even could have with an in-person supervisor.

Citing accessibility, flexibility, and immediacy of feedback, all the interns who participated in e-supervision appreciated the amount of contact time. Another student observed:

> And then, I would say the feedback was something that was actually better through e-supervision only because a lot of times we didn't have an actual conference right after all of the observations. But my supervisor directly sent me typed out notes of just observations throughout her time watching the therapy sessions so it was actually stronger as far as feedback goes.

Data from the structured interviews, surveys, and supervisor data sheets also confirmed that all seven of the e-supervised graduate SLP interns were supervised in accordance within the requirements of their state issued student permit. More specifically, during each week of the project, the e-supervised interns were directly e-supervised at least 25% of the time during direct interventions and diagnostics. Recall that each e-supervised intern was to receive 2.5 hours of additional support from the e-supervisor (i.e., indirect e-supervision/mentoring). An analysis of the data sheets revealed each intern received at least that minimum amount of indirect supervision/mentoring throughout each week of the project. The interviews revealed the following activities were also conducted: post-observation conferences with the interns; written and verbal feedback on observations; support for special education paperwork and lesson plans; discussion of mid-term and final grades; observation of the intern during meetings; professional development; and meetings with the university liaison supervisor or district administrator. Finally, when the graduate SLP interns were asked if they were afforded sufficient amounts of time to meet with their OMNIE supervisors each week, 100% of e-supervised interns agreed.

During the interviews, 100% of the e-supervised interns positively perceived the in-person meeting they had with their e-supervisors at the beginning of the school year. At this onsite meeting in the interns' school districts, the e-supervisors discussed the supervisory role and expectations, drafted the therapy schedule, reviewed caseload files, and established contact with the district personnel. Although the e-supervisors observed consistently thereafter and were able to evaluate the graduate SLP interns during a variety of professional activities, 40% of the e-supervised interns preferred that their supervisor provided more in-person supervision at the beginning of the school year. It was noted:

> If potentially the first several weeks or the first month that supervisor was in person to go over all of the basics then became an observation via e-supervision, or what-not, then I feel like it would be a much stronger program basically because I would have the knowledge and the base that I needed to get started. But it was difficult just because there was no person physically there to demonstrate what the supervisor was trying to get across or to actually look up past and current paperwork to figure out what I should be doing specifically.

In short, each of the OMNIE graduate SLP interns who participated in e-supervision commented positively about their experiences and the ways in which e-supervision could support them in their placements and offered ways to enhance or improve the project in the future.

E-Supervision Technology and Equipment

The e-supervised graduate SLP interns were asked a series of questions on the survey related to the technology and equipment. An overwhelming majority of the e-supervised interns agreed that the Skype video quality, laptop, and Internet connectivity were adequate. When asked if the Skype audio quality was adequate, 100% of the e-supervised graduate SLP interns agreed. When asked if the technological support was adequate, 67% of the interns agreed. Sixty-seven percent of the interns agreed the e-supervision website was adequate. When asked if the children on the caseload were distracted by the observing e-supervisor, 17% of the interns said they were, but during the interviews it was revealed the distraction subsided as the year progressed.

During the interviews, many technological aspects of the study were positively perceived. The e-supervisors were able to use the technology to observe interventions and diagnostics in real-time. The instant message feature on Skype allowed the e-supervisor to provide feedback during and after the observation without disrupting what was occurring in the therapy room. One graduate SLP intern stated: "My favorite thing is she can type to me as the session is going on". Timeliness of feedback was consistently noted across all interns as being an important positive aspect of e-supervision as they were able to have immediate feedback, make adjustments mid-way through a therapy session, or adjust methods sooner than later.

Skype was considered to be an appropriate program to use and it was preferred over other videoconferencing programs (e.g., Adobe ConnectNow). The graduate SLP interns also liked how they could email paperwork (e.g., lesson plans, Individualized Education Program's (IEP's), and Evaluation Team Reports (ETR's) to the e-supervisors and nothing had to be printed out. Lesson plans, paperwork, test protocols, and therapy materials were scanned and emailed to the e-supervisors for review, and revisions were suggested. There was an electronic paper trail that could be used to document graduate SLP interns' progress. The Internet connectivity allowed the e-supervisor to look up resources for the intern while the observation occurred and these were later transmitted by email or instant messaging. The videoconferencing technology and e-supervision website also allowed the interns to receive professional development on strategies and special education law. By constantly using technology, graduate SLP interns felt that this method encouraged them to utilize resources on the Internet and not be constrained by what was only available in that moment, in the building, or through the recommendation of their supervisor alone.

Despite the fact that the majority of e-supervised interns felt that the technology and equipment were adequate for supervision, they noted some weaknesses. At times throughout the year, all the e-supervisors and graduate SLP interns experienced dropped calls, and a new Skype-to-Skype connection would have to be made. Each intern experienced interrupted observations due to frozen screens, and the calls would have to be refreshed. When the video would freeze, the audio remained fully functional while the interns worked to refresh the screen. Once the supervisors' Internet service was upgraded, problems with frozen screens were markedly reduced.

One SLP intern who provided services to multiple buildings expressed frustration related to the transportation of the equipment. The intern felt it was difficult to be observed at the different buildings because all the equipment needed to be transported there. The various pieces of equipment (i.e., webcam, laptop, speaker, and microphone) were believed to be too cumbersome to transport.

Overall, technology issues and the associated challenges were to be expected as is with any new technology used in a novel way. Still, nearly all graduate SLP interns who participated in e-supervision commented affirmatively about the technology and the support they received because of increased access to their supervisor and the relative ease with which they were able to connect on most occasions.

Within Subjects Comparison of E-supervision and In-person Supervision

During their first year in graduate school, all five of the e-supervised interviewees previously received in-person supervision at their university's speech-language clinic. During the interviews, the graduate SLP interns were asked to compare e-supervision with their past in-person supervision experiences. An intern shared, "I felt like it definitely was adequate supervision on her part. Even more so than what I would have gotten in person." A portion of the survey was used to compare in-person supervision with e-supervision. On the survey, 83% agreed e-supervision was a more convenient form of supervision.

When asked via the survey if e-supervision was less stressful than in-person supervision, 67% agreed. The difference in stress levels between in-person and e-supervision emerged during the interviews:

> I would say it was maybe less stressful. Only because you knew someone was there observing but there wasn't physically a person in the room or physically a person

behind a piece of glass or a mirror actually watching on. It felt like a much more natural setting just because I knew it was the students and I. Whereas having a supervisor physically there, especially in the room with you at the same time, it creates a presence that wouldn't be typical for one-on-one interaction or small group interaction, having someone in the background lurking, watching.

On the survey, all of the e-supervised interns agreed e-supervision promoted their independence. During the interviews, 60% of the graduate SLP interns further discussed how e-supervision facilitated their professional independence. Because the e-supervisors were not on site, the interns were primarily responsible for doing all elements of the job (e.g., secretarial work, scheduling meetings, interventions, diagnostics), and they needed to seek out information on their own. In particular, it was noted: "With face-to-face I feel like it is easier to depend on someone with supervision it's, you know you have to really trust each other that you're making the right decisions." E-supervision allowed the graduate SLP interns to design and implement interventions more independently because it was not their supervisors' caseload. Moving along the continuum of supervision, from dependent to independent, is a goal of professional socialization that appears to have been realized through e-supervision.

The e-supervisors were not familiar with each school district, and therefore it forced the graduate SLP interns to seek assistance from their district mentor, building administrator, or colleagues. The e-supervisors' unfamiliarity with the district was considered to be both a strength and a weakness of the program. On the positive side, an intern believed e-supervision "has made me, just knowing my own personality type, I know I'm kind of a dependent person and I don't always trust myself and this kind of made me trust what I do know." Contrastively, another student felt,

> One of the biggest weaknesses of just her not being here is she doesn't know the district. And since districts are so different, I always have to, it's good in a way, I have to, you know, I have to go find my own answers. But since districts work so differently that can be a downfall and she doesn't know the students.

The interns demonstrated some neutrality when asked if e-supervision was better and more productive than in-person supervision. When the graduate SLP interns were asked if e-supervision was superior to in-person supervision, 17% agreed and 83% remained neutral. Data from the interviews may shed some light on this high level of neutrality. When an e-supervised intern was asked if she could do it over and be e-supervised again, she provided the following response:

> I really don't think I have a preference. I have been supervised in both ways and think that they both have been really great experiences. So I think it's more the supervisor as compared to the method of supervision.

When asked if e-supervision was a more productive than in-person supervision, half of the e-supervised graduate SLP interns agreed and the other half remained neutral.

DELIVERY OF SUPERVISION

As was mentioned earlier, all e-supervised graduate SLP interns on the survey reported they were fully supervised throughout the course of their internship. E-supervision "provide[d] enough supervision, enough observation, [and] enough time to have discussion." When the in-person supervised graduate SLP interns were asked if they were supervised 25% of the time, 95% agreed e-supervision occurred during interventions and 72% agreed it occurred during diagnostics. Both groups of graduate students reported they were observed during pullout interventions, screenings, and assessments. Eighty-six percent of the in-person supervised interns were observed during classroom-based interventions. This is in contrast to the e-supervised graduate SLP interns who were only supervised 34% of the time in the children's classrooms. Noting that it was sometime difficult (though not impossible) to set up technology in whole class situations, the e-supervised graduate SLP interns recalled that observations in pull-out sessions were more effective as the video was able to be focused in a set direction and the audio was uninterrupted. When asked if the supervisor observed the graduate SLP intern provide services to a variety of students on the caseload, 100% of the e-supervised and 87% of the in-person supervised interns agreed. Finally, all of the e-supervised and 96% of the in-person supervised interns believed that the supervision they received was beneficial.

When asked if the supervisor demonstrated therapy and diagnostic techniques, 67% of the e-supervised and 86% of the in-person supervised graduate students agreed. When asked if the supervisor was able to sufficiently explain how to implement a therapy or diagnostic technique, 100% of the e-supervised and 88% of the in-person supervised graduate students agreed. Although the e-supervisor explained how to implement a technique, it appeared as though it was not easy to do. During one interview, an e-supervised intern stated she thought "it was hard for [the e-supervisor] to demonstrate different techniques [because] she couldn't really show me what she was talking about sometimes." Another intern experienced problems learning data collection techniques through e-supervision:

> And it was also kind of hard for her to supervise the way I was collecting my data.
> Sometimes I had questions and I had to hold up my paper to the computer. It would have
> been easier I think, in person for her to help improve my data collection.

The graduate SLP interns thought some in-person supervision could help with collecting accurate data on subtle speech sound errors, voice distortions, and types of nasality. Despite the e-supervisor's ability to sufficiently explain techniques, the e-supervised interns nonetheless preferred to have the e-supervisor available to come to the school district throughout the school year when an intervention, diagnostic, or data collection strategy or technique needed to be physically demonstrated or critiqued.

QUALITY OF SUPERVISOR

Supervisory knowledge. The graduate SLP interns were asked to state their level of agreement with survey statements related to their supervisor's knowledge of the field, special education law, public school organization, and specific school district. When asked if the OMNIE supervisor was knowledgeable about the field of speech-language pathology, special education law, procedures, and guidelines, all of the e-supervised and in-person supervised graduate SLP interns agreed. Additionally, when asked if the supervisor was knowledgeable about the organization of public schools, unanimous agreement was found among the survey respondents – both e-supervised and in-person supervised.

The results of the survey showed 84% of the e-supervised and 98% of the in-person supervised interns agreed that their supervisor was knowledgeable with the organization of the interns' school district. During the interviews, 40% of the interns wished their e-supervisor was more familiar with the school district and one explained: "Since districts work so differently that the supervisor being from outside the district can be a downfall and she doesn't know the students." Although each e-supervisor had an extensive background in school-based speech-language pathology, the e-supervisors had no direct working experience with the graduate SLP interns' school districts. The intern shared that when certain questions arose about district policies and procedures, the e-supervisor was not always able to answer and had to refer the intern to the district administration. Despite that fact that this was posed as a disadvantage to the e-supervision project, the graduate SLP intern described how she made it work to her advantage: "I have become very close with our director here, which I don't think my classmates have. So that's helped me build relationships."

Supervisory professional conduct. The interns were asked to state their level of agreement with survey statements related to the supervisor's professional conduct. When asked if the OMNIE supervisor maintained high expectations for the intern and the field of speech-language pathology, 100% of the e-supervised and 98% of the in-person supervised graduate students agreed.

All of the survey respondents agreed that the supervisor demonstrated ethical behavior. When asked if the supervisor exhibited strong interpersonal skills, 100% of the e-supervised and 91% of the in-person supervisors agreed.

The graduate students were asked to state their level of agreement with survey statements related to the supervisor's schedule, meetings, preparedness, and punctuality. All of the e-supervised and the vast majority of in-person supervised interns agreed that their supervisor had a flexible and adjustable schedule, scheduled regular meetings, and kept appointments. At these supervisory meetings, all of the survey respondents agreed that the supervisors were prepared to consult and assist the graduate students. During the interviews, 100% of the e-supervised graduate SLP interns believed e-supervision was a very convenient form of supervision. If the graduate student needed assistance from the e-supervisor at a specific time, the e-supervisor could adjust the schedule and meet via Skype or by phone. One e-supervised intern described what this looked like in practice:

> I pretty much know when I can reach her and if not she is very easily accessible so I find that very much a strength. I know some friends of mine who don't have e-supervision and they find at times their supervisors are very hard to reach because they have caseloads of their own.

Supervisory support and feedback. The graduate SLP interns were asked to state their level of agreement with survey statements related to supervisory support and feedback. The vast majority of e-supervised (100%) and the in-person supervised interns (95%) agreed that the OMNIE supervisors provided appropriate support and were available to provide guidance and answer questions. When one e-supervised graduate SLP intern was interviewed about how e-supervision was the same as in-person supervision, she indicated, "I think the type of feedback has been the same. I don't feel like I got less or more feedback either way." Another e-supervised intern believed she received better feedback and support with e-supervision because she received more written observations of her effectiveness. She shared:

> I was really able to find my strengths and weaknesses based on her comments because they were written and provided to me so I could look back on them or read through them and ask further questions from there. Other supervisors I had in person, they would give you a few pointers directly at the end of the session and if you remembered that great and you could make those changes next time but you didn't have something to physically refer to.

A third intern believed previous in-person supervisors only gave "a few pointers at the end of the session" and nothing was written down. When this occurred, the in-person supervisor's recommendations were forgotten by the next session.

When asked if the graduate SLP interns learned from the OMNIE supervisor, all of the e-supervised and 96% of the in-person supervised graduate students agreed. The e-supervised and in-person supervised interns both agreed that their OMNIE supervisor responded to the questions in a timely manner and provided verbal and written feedback. When asked if the supervisor utilized technology to improve the effectiveness and efficiency of communication, 100% of the e-supervised and 77% of the in-person supervised graduate students agreed. When asked if the supervisors supplemented recommendations with examples, additional readings (e.g., journals), and resources (e.g., websites), 100% of the e-supervised and 86% of the in-person supervised graduate students agreed. Specifically, one e-supervised student explained: "she [the supervisor] is also able to be on her computer and looking information up for me at the same time to give me good resources so that has been really helpful." Demonstrably, technology provided consistent support and enhanced mentoring and access to information with e-supervised students even more than with in-person supervised students.

All of the e-supervised and 97% of the in-person supervised graduate students agreed that the OMNIE supervisor provided feedback to improve therapy and the graduate students' understanding of special education paperwork. When asked if the supervisor provided feedback to improve diagnostic skills, 100% of the e-supervised and 88% of the in-person supervised graduate students agreed. During the interviews, 60% of SLP interns reported they received better or more feedback during the e-supervision project than during previous in-person supervision experiences. It was explained that during past in-person supervision experiences, the supervisors had a caseload to manage and were not able to observe the graduate SLP intern fully. The e-supervisors in the current project were able to solely devote their attention to the interns and were not distracted or preoccupied with other work responsibilities.

Supervisory development and evaluation of clinical competencies. The graduate SLP interns were asked to state their level of agreement with survey statements related to their supervisor's development and evaluation of clinical competencies. When asked if the OMNIE supervisor evaluated the interns fairly during midterms and final grading periods, 100% of the e-supervised and 93% of the in-person supervised interns agreed. All of the e-supervised and 91% of the in-person supervised graduate SLP interns agreed that their supervisors were able to determine the interns' strengths and weaknesses based on the observations. An e-supervised intern believed that she "was really able to find [her] strengths and weaknesses based on her [e-supervisor's] comments." Another student felt the technology impacted her e-supervisor's ability to fully evaluate data collection techniques and accuracy. When asked

if the supervisor provided objective data on the interns' abilities and skills, 100% of the e-supervised and 96% the in-person supervised graduate SLP interns agreed. When asked if the supervisor assisted the graduate SLP intern to self-evaluate progress and development; 100% of the e-supervised and 89% of the in-person supervised graduate SLP interns agreed. As is the goal of supervision through clinical experiences, overwhelmingly, both e-supervision and in-person supervised students found their supervisors to be helpful, competent, and skillful in their supervision, mentorship, and guidance in the field.

Supervisor-graduate student relationship. The graduate SLP interns were asked to state their level of agreement with survey statements related to the professional relationship with the supervisor. When asked if the OMNIE supervisor and intern got along well professionally, all of the e-supervised and 93% of the in-person supervised interns agreed. An e-supervised intern believed the technology facilitated the development of a productive professional relationship and provided this evidence:

> I think also it helped keep things very professional. We didn't sit and gossip or anything like that where maybe if I had a supervisor in person that might have happened a little more. We kept things very professional.

All the e-supervised and 93% of the in-person supervised graduate SLP interns agreed that they were comfortable asking the supervisor questions and being observed during interventions and diagnostic sessions. When asked if the intern was able to discuss client issues with the OMNIE supervisor, 100% of the e-supervised and 98% of the in-person supervised graduate SLP interns agreed. Further, 83% of the e-supervised interns agreed that they were able to establish a personal relationship with their e-supervisor. Despite only physically meeting once, an intern commented, "I had a really good relationship with my supervisor; she was really positive and really helped me." When asked if the graduate SLP intern preferred another OMNIE supervisor, none of the e-supervised agreed. Nearly a quarter (22%) of the in-person supervised graduate SLP interns preferred to have another OMNIE supervisor.

DISCUSSION

School districts in Ohio faced persistent shortages of SLPs since 2003. These shortages affected school districts, SLPs, families, and children with communication disorders in a number of ways. The lack of qualified SLPs forced school districts to increase caseload sizes, offer children minimal services, and pay for expensive contractual employees (Boswell, 2007). E-supervision offered the ODE the opportunity to place graduate SLP interns into remote, rural and hard-to-fill school districts where supervisor shortages also existed.

RESEARCH QUESTION 1: IN WHAT WAYS CAN E-SUPERVISION SUPPORT GRADUATE SLP INTERNS PLACED IN RURAL AND HARD-TO-STAFF PUBLIC SCHOOLS/DISTRICTS?

This study showed e-supervision can be used to support graduate SLP interns in a number of different ways. The use of e-supervision allowed the graduate SLP interns to be fully supervised across a variety of clients and professional activities in a manner that was very similar to in-person supervision. E-supervision contributed to the positive experiences the interns had working in school districts that experienced persistent SLP shortages. Research has suggested positive employment experiences were associated with an increased likelihood that the individual would continue employment in the school district over time (Kapadia & Coca, 2007).

As was recognized in the literature, e-supervision allowed the graduate SLP interns to access clinical and employment opportunities in desirable school districts where no in-person supervisor could be hired (Wood et al., 2005). These school districts were desirable to the interns because the districts were often in or very near the interns' home towns, family, and friends. Given the location of these school districts, highly qualified SLP supervisors were difficult to find. E-supervision allowed the interns to access professional SLP supervisors who were not able to travel to the school district but who possessed a considerable amount of school-based and supervisory expertise. The ability to place a graduate SLP intern in a desirable school district under the supervision of an experienced school-based SLP supervisor increased the likelihood that the interns would be successful and continue employment.

Because the e-supervisors worked part-time and did not have to devote time for travel, they had a sufficient amount of time in their schedules to adequately and flexibly supervise the graduate SLP interns. Additionally, the problems with the technology and equipment did not require that much time to address. Armed with a sufficient amount of time and flexibility, the results of the study showed the e-supervisors were able to provide more than an adequate amount of feedback and support to the graduate SLP interns. The e-supervisors were able to

supplement their observations with research and Internet resources on intervention and assessment techniques and had the flexibility in their schedules to support the intern with a variety of clients and professional activities.

Despite the benefits of e-supervision, the results of the study suggested it did not fully support the needs of each graduate SLP intern during the first few weeks of the school year. Two interns believed they needed more in-person supervision and assistance at the start of the internship. One graduate student specifically recommended in-person supervision twice a week for one month while another one suggested two full days of in-person supervision during the first and second weeks of school. In research by Dudding (2004), a similar hybrid approach to supervision was recommended by the e-supervised speech-language graduate students. It could also be argued that the sole use of e-supervision might prevent a graduate student from developing certain interpersonal skills that are necessary during tense parent, colleague, and supervisor in-person interactions.

Finally, the e-supervised graduate students reported that the problems with the audio quality and transportation of the technology negatively impacted the support they received from the e-supervisor. The data showed the e-supervisors had difficulty hearing certain subtle features of speech impairments and evaluating data collection. The audio issues may have been due to the lower quality of the microphones and speakers. Due to financial constraints, improved microphones and speakers were not purchased and evaluated. Finally, there was an instance where the equipment was believed to be somewhat cumbersome to transport between buildings. In this case, e-supervision was limited to fewer buildings, and the graduate student recommended that each building have its own dedicated laptop and equipment for e-supervision.

RESEARCH QUESTION 2: WHAT ARE GRADUATE SLP INTERNS' PERCEPTIONS OF IN-PERSON SUPERVISION COMPARED TO E-SUPERVISION?

In-person and e-supervision were largely regarded as comparable supervision formats and graduate SLP interns had positive experiences with both. These findings were consistent with a previous study that investigated the perceptions of counseling interns who received both types of supervision (Nelson, Nichter, & Henriksen, 2010). Not only was e-supervision regarded as comparable in many respects, it possessed several superior elements. E-supervision was perceived to be more convenient and less stressful, and the e-supervised graduate students were supervised more frequently than their in-person counterparts during assessment and screening activities.

Finally, one element of e-supervision was found to be inferior to in-person supervision. The majority of in-person supervised graduate SLP interns reported they were observed during the delivery of classroom-based lessons. Only two of the e-supervised interns had the

same experiences. Although it was logistically possible to e-supervise during classroom-based lessons, the vast majority of children on the caseload only had pullout therapy on their individualized education programs (IEPs).

This research demonstrates that is quite possible, even successful, to employ e-supervision with speech-language graduate students and that it is sufficiently supportive, responsive, and professionally appropriate.

IMPLICATIONS

Given the success of the e-supervision project and positive perceptions of graduate speech-language interns, these findings hold important implications for school districts, speech-language graduate programs, policy-makers, and accrediting bodies like ASHA. While the OMNIE Grant Program and e-supervision pilot project have formally reached their end, it is important for the field to consider how e-supervision might change or compliment the professional development of pre- and in-service SLPs.

For school districts that serve children with speech-language needs, e-supervision offers many opportunities to improve services while making the most of limited resources. Schools are often called upon to host and supervise graduate SLP students during school-based practica. Additionally, school districts that hire new SLP graduates (i.e., clinical fellows) are responsible for providing at least 36 hours of direct and indirect supervision in order for the SLP to gain a Certificate of Clinical Competence with ASHA. In each instance, providing supervision for student teachers and new graduates is costly – in time, funding, and service capacity. E-supervision offers the opportunity for schools districts to expand their capacity to host graduate SLP candidates and serve clinical fellows without placing further burden on other staff members with heavy caseloads, allocating funds for mileage reimbursement, and limiting services to children. E-supervision enables schools districts the opportunity to recruit, prepare, and hire new speech-language professionals by connecting them with highly qualified and licensed SLPs who can serve as supervisors and mentors when they are unavailable due to proximity issues, limited funding, or other challenges.

The implications are also significant for SLP graduate programs. E-supervision offers a productive and effective way to manage, supervise, and facilitate field-based experiences as required by professional organizations, accrediting bodies, and university regulations. SLP candidates can be placed in a greater variety of locations, at greater distances from the university, for required clinical field experiences without sacrificing supportive supervision and quality mentorship. These clinical field placements may include placements closer to the candidates' home, in settings that serve unique or diverse populations, or schools that are underserved by SLPs. In any case, e-supervision offers the ability to supervise, in accordance with professional guidelines and accrediting requirements, these candidates in a cost-efficient, pedagogically impactful manner that, as supported by this research, also serves students well in their preparation to become highly-qualified and licensed SLPs.

Professional organizations and policy/licensing bodies for SLPs would be well-served to recognize the promise of e-supervision -- both in their guidelines and as they plan for the future of the profession. Employing the use of technology to expand and enrich opportunities for future SLPs will improve their preparation and access to diverse experiences as well as benefit children with speech-language needs. This study speaks to the maintenance of supervisory integrity and exemplary professional preparation through e-supervision.

LIMITATIONS

It is important to recognize that this study, while offering promising possibilities for speech-language preparation, practice, and professional socialization, is but one study with a limited demographic and a relatively small group of participants. The study was situated in a small, grant-funded project that aimed to explore an innovative practice. Results are not generalizable; however, we contend that the findings presented here do suggest effective practices for supervision, impactful opportunities for students, and the possibility of expanding the speech-language field to recruit, prepare, and support more individuals to serve a growing population of young people who will benefit from speech-language services in schools and communities.

REFERENCES

1. American Speech-Language-Hearing Association. (1985). Clinical supervision in speech-language pathology and audiology. Rockville, MD: Author.
2. American Speech-Language-Hearing Association. (2005). The standards for the certificate of clinical competence in speech-language pathology. Rockville, MD: Author.
3. American Speech-Language-Hearing Association. (February, 2007). The subject is change: Creating a vision for the future education of speech-language pathologists. Presentation made at the 2007 Speech-Language Pathology Education Summit, New Orleans, Louisiana.
4. American Speech-Language-Hearing Association. (2008). Clinical supervision in speech-language pathology [Technical Report]. Rockville, MD: Author.
5. Anderson, J. L. (1988). The supervisory process in speech language pathology and audiology. Austin, TX: Pro-Ed.
6. Boswell, S. (2007, March 6). Ohio grant addresses personnel shortage: Innovative strategies meet short- and long-term goals. The ASHA Leader, 12(3), 14-15.
7. Dudding, C. C. (2004) Perceptions of the use of videoconferencing for supervision: Differences among graduate clinicians. Unpublished doctoral dissertation, University of Virginia, Charlottesville.
8. Dudding, C. C. (2009). Digital videoconferencing applications across disciplines. Communication Disorders Quarterly, 30(3), 178-182.
9. Dudding, C. C. & Justice, L. M. (2004). An e-supervision model: Videoconferencing as a clinical training tool. Communication Disorders Quarterly, 25(3), 145-151.
10. Hallett, T. L. (2002). The impact of technology on teaching, clinical practice, and research. ASHA Leader, 7(11), 4.
11. Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. Journal of Mixed Methods Research, 1, 112-133.
12. Kapadia, K., Coca, C., & Easton, J. Q. (2007). Keeping new teachers: A first look at the influences of induction in the Chicago Public Schools. Chicago, IL: Consortium on Chicago School Research. Retrieved from http://ccsr.uchicago.edu/publications/keeping-new-teachers-first-look-influences-induction-chicago-public-schools
13. McCrea, E. S., & Brasseur, J. A. (2003). The supervisory process in speech-language pathology and audiology. Boston: Allyn & Bacon.
14. Nelson, J. A., Nichter, M., & Henriksen, R. (2010). On-line supervision and face-to-face supervision in the counseling internship: An exploratory study of similarities and differences. Retrieved from http://www.counselingoutfitters.com/vistas/vistas10/Article_46.pdf
15. Olson, M. M., Russell, C. S., & White, M. B. (2001). Technological implications for clinical supervision and practice, The Clinical Supervisor, 20(2), 201-215.
16. Richardson, J. W., McLeod, S., & Garrett Dikkers, A. (2011). How do school districts treat K-12 principals and principal candidates with online credentials? International Journal of Leadership in Education, 14(3), 351-368.
17. Robinson, T., Creaghead, C., Hooper, C., Watson, J., & McNeilly, L. (2007). Speech-language pathology Education Summit proceedings. Rockville, MD: American Speech-Language-Hearing Association.
18. Sax, L., J., Gilmartin, S. K., & Bryant, A. N. (2003). Assessing response rate and nonresponsive bias in web and paper surveys, Research in Higher Education, 44, 409-432.
19. Wood, J. A., Miller, T. W., & Hargrove, D. S. (2005). Clinical supervision in rural settings: A telehealth model. Professional Psychology: Research and Practice, 36(2), 173-179.

Appendix A

E-supervisor Data Form

Supervisor's Name:

1. What is the time span for this data sheet?
2. Observations
     Did you observe at least 25% of therapy this week?   Yes_____   No _____
     Did you observe at least 25% of diagnostics this week?   Yes_____   No _____
3. Mentoring/Indirect Support
     What did you do during your 2.5 hours? Please describe.
     Exactly how long did you mentor or provide indirect support this week in total?
     What modes of communication did you use (email, phone, Skype)?
4. What kind of session did you observe? (pullout, classroom-based, assessment, screening, meetings)
5. Were there any problems with technology this week? (please describe)
6. What kind of supports do you need to support your students?

Appendix B

Interview Questions

1. Please tell me about your experiences with e-supervision last year.
2. Do you feel this method allowed you do be adequately supervised? Why or why not?
3. What do you think are the strengths and weaknesses of this type of supervision?
4. If you could do it over, would you prefer to be supervised through e-supervision? Why or why not?
5. With regard to e-supervision, what do you think should be done the same in the future?
6. With regard to e-supervision, what do you think should be done differently in the future?
7. When you think back to other face-to-face supervision experiences you had, how was e-supervision the same? How was it different?
8. Is there anything else you would like to share about your experiences with e-supervision?