Using Technology to Enhance Clinical Supervision and Training

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Using Technology to Enhance Clinical Supervision and Training

Tony Rousmaniere

The past two decades has witnessed an explosion in the number of technologies being used to deliver and enhance supervision and training,[1] such as Web-based videoconference, the iPad, webcams, the Internet "cloud," clinical virtual reality software, Web-based software for tracking clinical outcomes, and software to code psychotherapy session videos. Around the world, supervisors have been rapidly moving their services online; clinical supervision and training is no longer restricted by geography. In June 2013, a Google search for "psychotherapy Skype supervision" resulted in over 300 listings for individual or group psychotherapy supervision by videoconference, provided by supervisors around the world, in a diverse range of modalities, including acceptance and commitment therapy (ACT), addictions treatment, cognitive-behavioral therapy (CBT), dialectical-behavioral therapy (DBT), emotion-focused therapy (EFT), eye-movement desensitization and reprocessing (EMDR), drama therapy, equine-assisted therapy, Gestalt, imago therapy, intensive short-term dynamic psychotherapy (ISTDP), music therapy, psychoanalysis, sandplay therapy, and sensory motor therapy. The Council for the Accreditation of Counseling and Related Educational Programs (CACREP) lists 12 Internet-based accredited masteral and doctoral programs (CACREP, 2012). Clinical research on technology-assisted supervision and training (TAST) has been conducted in Australia, Canada, England, Norway, and the United States (e.g., Rees, Krabbe, & Monaghan, 2009; Reese et al., 2009). TAST offers a promising range of potential benefits, including the following (Barnett, 2011; Berger, 2004; Jerome et al., 2000; Powell, 2011; Vaccaro & Lambie, 2007; Whipple et al., 2003):

[1] In this chapter, the term "supervision" refers to a training relationship in which the trainee is unlicensed and the supevisor has legal responsibility for clinical services. The term "consultation" refers to a training relationship where all parties are licensed and the trainer does not have such legal responsibility.

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- increased accessibility of psychotherapy training, especially for clinicians in rural or remote areas;
- reduced cost for travel and improved flexibility of scheduling;
- increased access for peer consultation (in small groups via teleconference, or large groups via electronic mailing lists and Web forums);
- potentially enhanced diversity in trainees, due to improved accessibility of training;
- increased ease in recording and documenting supervision and training; and
- improved clinical services through continuous outcome assessment.

However, the rapid adoption of TAST also poses significant challenges for the field. For example, supervisors and trainers who did not grow up with Internet technology may find the ever-changing range of new technologies bewildering. A host of critical questions for supervisors and trainers remained unanswered, including the following:

- What are the legal risks that supervisors take by using these new technologies? For example, how can supervisors maintain confidentiality of client records if they are transmitted by, or stored on, mobile devices, or the cloud?
- What level of technological expertise are supervisors expected to have to use these technologies? For example, what are reasonable competency standards for use of software programs that are updated on a monthly, or even weekly basis?
- What are the effects of technology on the major domains of supervision? For example, how does cybersupervision affect the supervisory working alliance?
- What are the impact on patient care (e.g., clinical outcomes)?
- What are the implications for informed consent (by client and supervisee) if the client, supervisee, or supervisor do not fully understand the technologies being employed, or if those technologies change frequently?

The goal of this chapter is to provide clinical supervisors with a practical and accessible overview of current developments in supervision and training technology. The first section of this chapter reviews the technological developments of the past decade that apply to TAST, including two new directions of development that are likely to affect the next decade. The second section focuses on the ethical, legal, and regulatory issues raised by TAST. The third section presents a review of the published research and literature regarding TAST since 2000, and describes a case example of a TAST-integrated training program.

Terminology

A range of terminology has been used to describe various uses of technology in clinical supervision and training, including cybersupervision (Coker, Jones, Staples, & Harbach, 2002), Web-based training (Weingardt, Villafranca, & Levin, 2006), telemedicine and telehealth (Stamm & Perednia, 2000), computer-based learning and computer-assisted learning (Berger, 2004), technology-assisted distance supervision and consultation (Coker & Schooley, 2009; McAdams & Wyatt, 2010), E-learning

(Weingardt, Cucciare, Bellotti, & Lai, 2009), and computer-mediated training (Janoff & Schoenholtz-Read, 1999). In this chapter, the term technology-assisted supervision and training (TAST) will be used as an all-encompassing term to designate the use of technology to assist in clinical supervision or training. Previously, the term "face-to-face" has been used to designate when both the supervisor and trainee are in the same location (e.g., Chapman, Baker, Nassar-McMillian, & Gerler, 2011). However, this terminology is no longer accurate, due to the widespread adoption of videoconference (which is face-to-face but usually at a geographic distance), so the term "in-person" will be used instead.

The Past Decade of Technological Development

To many supervisors and trainers, the most noticeable change to technology over the past decade is that devices (e.g., video cameras and laptop computers) have become smaller, lighter, and more powerful. However, in addition to this clear change, a number of less obvious changes have occurred in the background, which may be more difficult for supervisors to detect, thus increasing the risks of inadvertent breaches of confidentiality.

The Evolution of Technology

Pre-2000	***Post-2000***
Devices are mechanical	Devices run on software
Devices stand alone	Devices connect via networks and the Internet
Devices are designed to save data	Devices are designed to share data
Devices turn on/off	Devices are designed to be always on
Devices are static	Devices constantly update themselves
Devices serve only the user	Devices can serve the user manufacturer, or others
Devices are single purpose	Devices are multifunctional
Data are stored locally	Data can be stored in multiple distant locations

Mechanical versus software-based devices

Except for computers, past technologies used in supervision (e.g., video cameras and tape recorders) were largely mechanical. It was clear when they were on, and what they were doing. Now, most technology runs on microprocessors and software. While this greatly increases the functionality of these devices, it can also make it challenging to know when the devices are on, and what they are doing. For example, most smart phones have dozens of "apps" running in the background at any given time, sharing a wide range of data with other devices, wirelessly via the Internet.

Technology that is connected

In the past, technological devices were mostly stand-alone, except for the phone, which was connected via a wire. Now, most devices are designed from the ground up to be connected to a network or the Internet, via cables or wirelessly. For example, most new smartphones and laptops come with wireless Bluetooth connections pre-installed. Additionally, an increasing amount of communication is being routed over the Internet. For example, all phone communications at the author's university is transmitted over the Internet, a system call voice over the Internet protocol (VOIP). As the ease of connectivity increases, so do the risks of privacy violations, via malicious intent or inadvertent accident.

Technology that wants to share

In the past, devices were designed with the sole purposes of capturing and saving data. Now, devices are also designed from the ground up to share data. All data are considered valuable to share, including photos, videos, e-mails, and even a person's physical location. Smart phones and some new cameras will automatically "share" their photos and videos through wireless connections, increasing the risk of confidentiality violations.

Technology that is always on

In the past, the default setting for devices was off, unless a user turned it on. Now, the default setting for many devices is on, unless a user turns it off. Having an "always on" standby mode is helpful because devices can run maintenance software while not in use, such as antivirus scanning software. However, it also increases the risk of unintentional use, or malicious use by others. For example, seven computer rental companies were recently caught secretly installing video-monitoring software that used webcams in rental computers to videotape customer without their knowledge (British Broadcasting Corporation, 2012).

Technology that is constantly updated

One advantage of new technology that runs on software and is connected to the Internet is that those devices can easily update themselves. Your computer or smartphone may frequently and automatically download new functionality, without any effort on your part. To some, this can feel like a never-ending learning curve that feels steeper by the day. Ensuring competence was much simpler when devices did not change themselves overnight. Staying current with software updates is important in order to avoid heightened risk of security threats (e.g., viruses). However, some programs and devices will reset their settings to "public sharing" every time they are updated, thereby raising the risk of privacy violations.

Technology that serves many masters

Previously, technological devices served only the person who used it. However, many new devices come with software preinstalled that is designed to benefit the

manufacturer or advertisers. For example, most new computers and video cameras ship with software "suites" that are essentially paid product placements by other companies (i.e., "install monetization"). When you setup your new device, it may innocuously ask if you want to install a host of other programs as well. Many supervisors may not be technologically sophisticated enough to know what risks these programs may pose to privacy. Likewise, software preinstalled by the manufacturer may contain features that make your device more vulnerable to hackers.

Into the Social Cloud: A Look Forward to the Next Decade of Technological Development

Two major recent innovations have changed the direction of almost all new technological development: the Internet cloud and "social" technology. Both of these innovations greatly expand the power and efficiency of new technology, but in the context of clinical supervision and training, they also heighten the risk of privacy violations for both supervisees and clients. An increasing number of new technological devices have cloud and social features built into the operating system, so they function automatically in the background. For example, most new computers and smartphones come with cloud and social technologies preloaded, running in the background. As such, supervisors may not be aware when these features are operating. Understanding these two developments is key for supervisors to use new technologies safely.

Cloud computing

Think of the Internet cloud as thousands of computers in a warehouse, all connected to each other and the Internet. These computers are called servers and can be located anywhere in the world. Technology companies rent servers for a range of purposes, such as data storage or running complex software, because it is more efficient than buying their own computers. Many new devices and software programs (e.g., the iPhone and Google Docs) use these servers to store data (e.g., videos and documents). Server companies often contract with backup server companies, also located internationally, to keep copies of the data, in case of emergencies.

The clear advantage of cloud computing is efficiency: technology companies such as Apple, Amazon, or Google can provide high-quality services at very low prices. The disadvantage for clinical supervisors is the potential loss of control of confidential information because the data are stored in multiple locations. Although server and backup server companies may promise to keep data secure, it is impossible for supervisors to assess their compliance. Likewise, it is probable that the staff who operate those companies may not fully understand the scope and limits of clinical confidentiality. Furthermore, it can be challenging for supervisors unfamiliar with technology to ensure that the privacy settings on cloud computing software is set to "private." If privacy settings are set to "public" (which is sometimes the default setting), then any information uploaded to the cloud can be accessed by anyone on the Internet, or even found through Google searches. For this reason, the most conservative and safest option for the storage or transfer of confidential information (e.g., clinical notes

or videotapes) is to not use cloud computing software (E. Rodolfa, personal communication, October 3, 2012). If cloud computing is used, it is recommended that confidential information be encrypted with strong passwords, a cloud computing service that permits compliance with the Health Insurance Portability and Accountability Act (HIPAA) is used, and the use of cloud services as part of the client consent process is disclosed. For additional information on cloud computing in a clinical context, see Devereaux and Gottlieb (2012).

HIPAA-Compatible Cloud-Based File Storage and Transfer Services

1. http://www.mydocsonline.com
2. http://www.foldergrid.com
3. http://www.braveriver.com
4. http://www.box.com
5. http://www.boxcryptor.com

Examples of Software That Use Cloud Computing

- Most backup software programs for computers and smartphones
- Internet-based photo and video organizing software (e.g., Apple iCloud)
- Internet-based file sharing programs (e.g., Dropbox)
- Internet-based e-mail programs (e.g., Gmail, Yahoo)
- Internet-based applications (e.g., Google Docs)

Social software

Another new major technological innovation is "social" technology. Software is considered social when it is designed to facilitate *connections* with other users and *sharing* of data. Some new software programs are entirely social, such as Facebook, which now connects almost one billion users. Most supervisors know to never post confidential information on social services like Facebook. However, an increasing number of new devices have built-in social features that users may not be aware of. Thus, supervisors run the risk of inadvertently "sharing" confidential information if they use a device with an active social feature. For example, some smartphones built on the Google Android operating system have a feature that will automatically upload data to the user's cloud-based Google+ account. Unless this account is set to private, the data will be available to anyone on the Internet. (If the data are labeled with a client's name, then they could be potentially be found whenever someone does a Google search for that name.) Furthermore, the companies that build these devices have a vested interest in promoting and facilitating open data sharing, so many of the social features in new devices have a default privacy setting of public. Thus, when using devices or software with social features, it is recommended that supervisors carefully check the privacy settings.

The "Supervision Technology Ecosystem"

In the past, the "toolbox" model for TAST was most appropriate. In this model, supervision technology consisted of a set of tools, such as video cameras for recording therapy sessions, or ear buds for one-way-mirror supervision. Supervisors could simply pick which tools they found helpful, and leave the others unused. In the toolbox model, devices were discrete, single-purpose, and only turned on when used. This model has become less applicable, however, as supervision increasingly takes place in an environment containing technologies that are interconnected, multifunctioning, and frequently never turned off. For example, many offices used for supervision have multiple "smart" devices running at any given time, including computers, cell phones, or tablets. Each of these devices has dozens of software programs running in the background, interacting with the Internet cloud, and frequently updating themselves with new functionality. As such, the toolbox model for TAST can dangerously mislead supervisors, increasing the risk of privacy violations. Therefore, it is proposed that the clinical supervision community move away from viewing technology as a set of tools to be used, and instead conceptualize technology as an environment in which we work, also called the "technology ecosystem" (Mantovani, 1996): a constantly evolving network of multifunctioning, interconnected software and hardware that is always on. Applied to the field of clinical supervision, this model can help supervisors become aware of the constantly evolving technological connections around them. For example, although supervisor may pay for a highly secure videoconference system that permits HIPAA compliance, that software will not ensure against confidentiality breaches due to other software programs or viruses on their computers. Likewise, locking a video camera in a filing cabinet will not provide security if that camera automatically shares videos wirelessly via the Internet.

Laws and Regulations Regarding Technology-Assisted Distance Supervision

While the development and experimentation in Internet-based TAST by clinicians has moved quickly, regulations regarding such practices are developing relatively slowly. The author was unable to find any regulations specific to Internet-based TAST at the national level in any country. However, many countries have regulations regarding the electronic transmission of confidential healthcare information, which applies to TAST. For example, in the United States, the HIPAA and Health Information Technology for Economic and Clinical Health Act (HITECH Act) set minimum standards requiring the protection of the confidentiality of all electronic health information.

In some countries, regulations specific to Internet-based supervision are being developed at the state level. For example, in their comprehensive survey of 46 state counseling regulatory boards in the United States, McAdams and Wyatt (2010) found regulations in six states, in development or discussion in 18 states, and prohibitions again Internet-based supervision in 19 states. Sixty percent of boards limited the hours that could be applied to licensure, with the limits ranging from 10% to

50% of total hours (McAdams & Wyatt, 2010). Similarly, in the United Kingdom, regulations are established by each different jurisdiction (S. Buller, personal communication, November 7, 2012). Supervisors who want to use Internet-based supervision should inquire with their local or national regulatory agencies regarding applicable laws and regulations. Supervisors and trainers should keep in mind that a lack of regulations specific to TAST does not mean that they are without risk of liability if a trainee or a client is harmed by the use of TAST (Kanz, 2001).The following is a list of issues commonly involved in the regulation of Internet-based TAST (Kanz, 2001; McAdams & Wyatt, 2010; Rousmaniere & Frederickson, 2013):

- Are there limits on the number of hours of TAST that can count toward licensure, continuing education credits, and so on?
- What jurisdiction has legal accountability when supervision or training is conducted across state lines or international borders?
- Is specialized training required for TAST?
- Are there informed-consent requirements specific to TAST?
- Are the standards of practice different for TAST?
- Are there regulations about reimbursement specific to TAST?
- Are there technological standards for the practice of TAST? For example, what level of data encryption in required?
- Should supervisors get informed consent from clients whose confidential information is shared via Internet supervision?
- Do professional liability insurance policies cover TAST, or supervision in multiple jurisdictions?

One complicating factor in international TAST is potential conflict between regulations in different countries. For example, in Canada, regulations prohibit clinicians from exchanging or storing confidential patient information in a manner that is not secure. However, in the United States, the Patriot Act permits a host of government agencies to gain access to confidential patient information, on the basis of suspicion of terrorist activity, without informing the patient. This means that Canadian supervisors may be deemed in violation of Canadian privacy regulations if they provide Internet-based videoconference supervision to a supervisee in the United States, or use any technology that transmits or stores confidential patient information on US servers, as the Patriot Act effectively prohibits the guarantee of confidentiality of patient information (R. Babins-Wagner, personal communication, October 23, 2012).

Professional association guidelines

A number of professional associations in the United States have developed guidelines for the practice of TAST. For example, in the United States the American Psychological Association has published a statement called the "Guidelines for the Practice of Telepsychology" (APA, 2013). In regard to supervision, the guidelines state that supervisors should be competent in technology, and balance online/in-person supervision:

> Psychologists using telepsychology to provide supervision or consultation remotely to individuals or organizations are encouraged to consult others who are knowledgeable about the unique issues telecommunication technologies pose for supervision or consultation. Psychologists providing telepsychology services strive to be familiar with professional literature regarding the delivery of services via telecommunication technologies, as well as competent with the use of the technological modality itself. In providing supervision and/or consultation via telepsychology, psychologists make reasonable efforts to be proficient in the professionalservices being offered, the telecommunication modality via which the services are being offered by the supervisee/consultee, and the technology medium being used to provide the supervision or consultation. In addition, since the development of basic professional competencies for supervisees is often conducted in-person, psychologists who use telepsychology for supervision are encouraged to consider and ensure that a sufficient amount of in-person supervision time is included so that the supervisees can attain the required competencies or supervised experiences. (APA, 2013)

Likewise, the National Association of Social Workers (NASW) published the "Standards for Technology and Social Work Practice," which require that supervisors "shall be competent in the technologies used" (National Association of Social Workers & Association of Social Work Boards, 2005).

Perhaps the most specific guidelines available regarding TAST are provided by the Association for Counselor Education and Supervision (ACES), which in their "Best Practices in Clinical Supervision" stipulate that TAST supervision must "clearly approximate face-to-face synchronous contact" and that TAST must be compliant with HIPAA guidelines regarding password protection and encryption (ACES, 2011). However, like the APA and NASW, ACES guidelines also stipulate that supervisors must be "competent in the use of the technology employed in supervision," without explicitly defining competence in regard to technology (ACES, 2011).

Ethical Issues Posed by TAST

TAST poses a host of ethical challenges for supervisors and trainers. For example, if TAST is conducted over the Internet, then all of the security and confidentiality challenges from e-therapy apply (e.g., when conducting supervision by videoconference, confidential client information may be transmitted via the Internet). This is especially true in supervision of pre-licensure trainees, where there is a greater burden of responsibility and, thus, competence, on the supervisor. For example, if the client or the trainee has an emergency, the supervisor will have to step in with knowledge of local resources and laws (e.g., Kanz, 2001). Or, if the trainee is found to be not competent, the supervisor might have to provide services from a distance, over the Internet. For this reason, it is recommended that supervisors using TAST for distance supervision of pre-licensure trainees become competent in telehealth best practices (e.g., Mallen, Vogel, & Rochlen, 2005).

A review of the literature (Barnett, 2011; Devereaux & Gottlieb, 2012; Kanz, 2001; McAdams & Wyatt, 2010; Panos, Panos, Cox, Roby, & Matheson, 2002; Powell & Migdole, 2012; Shaw & Shaw, 2006; Vaccaro & Lambie, 2007; Watson, 2003) revealed a range of ethical issues posed by TAST that can be grouped into three broad categories: supervision process, legal and regulatory, and technology.

Ethical Issues in TAST

- Supervision Process Issues
  - Methods of communication between supervisor and supervisee
  - Evaluation of trainee
  - Collaboration and the supervisory working alliance
  - Procedures for when trainee is judged not competent
  - Local backup supervisors (if using distance supervision)
  - Cultural competency for supervisor and supervisee
  - Procedures for termination of supervision
- Legal and Regulatory Issues
  - Locals laws and regulations applying to supervisor and supervisee's locations
    - Limitations of hours of TAST that can be applied to licensure
    - Issues that may apply if the supervisor's licensure is out of the supervisee's jurisdiction
  - Plans for client or supervisee emergencies
  - Informed-consent procedures for both client and supervisee
  - Liability insurance appropriate for TAST
- Technology Issues
  - Backup procedures for cases of technological failure
  - How and where data will be stored, backed up, and deleted
  - Rules for privacy, security, and confidentiality of both client and supervisee information
  - Software security standards for all computers (e.g., antivirus software)
  - Standards regarding use of mobile devices, social software, and cloud computing
  - Training and competency standards

Supervision process issues

It has been suggested that all supervisory relationships start with the collaborative review of a supervision agreement that clearly states the roles and responsibilities of the supervisor and the supervisee (Ellis, 2012). If TAST is utilized, the agreement should include a description of the technology that will be used for supervision. Supervisors can use the list of Ethical Issues in TAST (see sidebar) to aid in writing a supervision agreement.

In the case of distance supervision, it is particularly important for supervisors to have clearly defined procedures for situations where there are client emergencies, supervisees are judged to not be competent, or supervision must be terminated (e.g., Panos et al., 2002). Likewise, local backup supervisors should be identified (e.g., Abbass et al., 2011).

Supervisors are particularly recommended to explicitly state what technologies should be used to contact the supervisor in an emergency (e.g., phone, text, instant messaging, or e-mail), and how long supervisees should expect to wait for responses

to nonemergency questions (Barnett, 2011; Kanz, 2001). This is especially pertinent when working with a younger generation of supervisees, who may be used to using text-messaging as a primary method of communication and expect to receive instant responses to text messages throughout the day.

One concern that has been raised repeatedly (e.g., Sørlie, Gammon, Bergvik, & Sexton, 1999; Vaccaro & Lambie, 2007) is the risk of TAST negatively impacting the supervisory working alliance due to the diminished capacity for subtle nonverbal communication when using videoconference, e-mail, and text chat. Although qualitative data have found that the range of communication in TAST may be limited when compared with in-person supervision (e.g., Sørlie et al., 1999), the published empirical studies and anecdotal reports to date have found no difference in the quality of the supervisory working alliance in TAST compared with in-person supervision (e.g., Reese et al., 2009; Rousmaniere & Frederickson, 2013; Sørlie et al., 1999). However, in light of data suggesting that the prevalence of collaboration in supervision may be quite low (at least from the supervisee's perspective; Rousmaniere & Ellis, 2013), it is recommended that supervisors utilizing TAST be especially alert for potential negative effects on the supervisory working alliance, and emphasize a collaborative approach to supervision.

Panos et al. (2002) discussed the cultural challenges that may be posed by TAST, when the supervisor may be geographically distant from the supervisee and client. David Powell, who provides TAST to supervisees in Turkey, Singapore, Vietnam, China, and throughout the United States, recommends supervisors to stay alert for cultural cues or miscommunications (Powell, 2011). Panos et al. proposed the "triad model", where supervisees have two supervisors: one on-site who is well versed in local culture, and one online.

Supervisors should also indicate to supervisees if and how TAST will be used in the evaluations. For example, many training programs now utilize software programs to assess clinical outcomes – will these be utilized to assess trainees' clinical competence?

Legal and regulatory issues

If Internet-based TAST is used, clients should sign an informed consent recognizing that their confidential information will be transmitted over the Internet (e.g., Kanz, 2001; Vaccaro & Lambie, 2007). The informed consent should state the technologies and security measures utilized, in as clear language as possible. For an example of a TAST-informed consent, see Abbass et al. (2011). Likewise, supervisors may consider having supervisees sign an informed consent for TAST since supervision can involve discussions of supervisees' confidential information (e.g., Kanz, 2001).

If distance-TAST is utilized for supervision of prelicensed trainees, supervisors should learn about local laws and/or regulations in the supervisee's location that are pertinent to client care (e.g., Panos et al., 2002). For example, in the United States, laws and regulations about child abuse reporting are determined at the state level. Likewise, supervisors should become competent in local laws and/or regulations relating to supervision, for example, the number of hours of supervision required per week, and the maximum amount of distance supervision that can be applied to licensure.

Supervisors are encouraged to consult with their liability insurance carrier to ensure that their use of TAST is covered. Supervisors providing distance-TAST may want to seek legal consultation about the possible liability implications of providing supervision services to a supervisee in a different jurisdiction.

Technology issues

When using TAST, supervisors should develop clear procedures for the use of technology, for example, how and where data will be stored, backed up, and deleted, and procedures for use in case of technological failure (e.g., Kanz, 2001). Security standards for technology should be specified (e.g., antivirus software.) In developing procedures, supervisors should be cognizant of all connections in the supervision ecosystem, including devices owned by supervisees that are only occasionally used for TAST. For example, if supervisees use their personal computers for TAST (e.g., to write clinical notes from home or use videoconference for supervision), then the supervisee's computer should be password-protected and have appropriate antivirus software installed. Supervisors are advised to pay particular attention to the use of mobile devices, social software, and cloud computing, as these technologies pose greater risk to violations of client confidentiality. Finally, both supervisors and supervisees should achieve competency in TAST, as will be discussed next.

Competency in technology

It has been proposed that supervisors and supervisees be assessed for achieving competence in fundamental clinical skills (e.g., Falender & Shafranske, 2004). Likewise, it can be argued that supervisors and supervisees should attain competency in whatever methods of TAST are utilized. However, defining and assessing competency in TAST is a thorny problem because the technologies used in TAST change frequently. Indeed, many software programs update themselves overnight, so a supervisor who is competent in a program one day may be mystified by it the next. Likewise, understanding how a particular technology works is only one piece of the technological competency puzzle: supervisors should ideally also understand the full network of connections underlying that technology (i.e., the supervision technology ecosystem). However, it is clearly not realistic for supervisors to be fully informed on this matter. For example, it is not feasible for supervisors who use videoconference for supervision to know the full network of connections used by software programs on the supervisees' computer. However, it is proposed that, at the least, supervisors attain knowledge of the basic functionality regarding how TAST devices/software work, and how to assess and adjust settings to provide maximum security.

Toward a Best-Practices Model of Technology-Assisted Distance Supervision

The current state of TAST is much like the old "Wild West": a vast, unregulated field, full of exciting potential to improve clinical supervision, being eagerly explored by early pioneers but also posing significant hazards. For the field of TAST to mature,

it has been advised that the various stakeholders (e.g., supervisees, supervisors, clinical training programs, regulatory boards, professional associations) come together and collaboratively establish rules and regulations to guide supervisors toward safe and ethical practice (McAdams & Wyatt, 2010; Vaccaro & Lambie, 2007). The author proposes that a set of "best practices" for TAST be developed, covering competency in the three domains discussed earlier: supervision process, legal and regulatory issues, and technology. Specifically, three "pillars" are proposed to guide the development of a best-practices model for TAST, building off the guidance previously offered by the literature (e.g., Kanz, 2001; Powell, 2011; Stamm, 1998), and based on the best-practices models widely recognized in the supervision literature (e.g., Bernard & Goodyear, 2014):

Pillar 1: best interest

TAST should be used only when it is in the best interest of clients and supervisees, and never solely for the convenience of supervisors. A test of this is whether supervisees, and clients where appropriate, can explain why the technology being used represents their best interests and goals.

Pillar 2: transparency

Supervisors should make technological tools and procedures clear to supervisees, and clients where appropriate. A test of this is whether supervisees or clients can clearly describe those tools and procedures.

Pillar 3: collaboration

Supervisors should involve supervisees, and clients where appropriate, in determining when to use TAST. A test of this is whether supervisees or clients feel included and that their opinion is valued in this process.

Research on Internet-Based Supervision and Training

A growing body of published literature is forming a research basis to inform supervisors on how, when, and why to use Internet-based supervision and training. A literature review conducted in July 2013 revealed 49 publications that had a significant focus on Internet-based TAST published between 2000 and 2013. (See Table 9.2 (a) and (b); Note that this literature review focused only on Internet-based TAST.) Of these studies, 26 were original research, and 23 were discussion of new technologies, case examples, or reviews of current literature. Of the research studies, 18 used quantitative methods, seven used qualitative methods, and one used mixed methods. Twenty-two of the studies took place in the United States, three in Australia, and one in the United Kingdom. Treatment modalities studied included CBT, motivational interviewing, psychodynamic therapy, school counseling, and rehabilitation counseling. The number of participants in each study ranged from three to 166, and both licensed and prelicensure clinicians were included as participants. The quantita-

tive studies assessed a wide range of outcomes, including supervision process (e.g., measures of the supervisory working alliance), skills acquisition (e.g., measures of adherence post-training), and supervisee satisfaction (e.g., questionnaires). At least six of the studies focused on the application of Internet-based supervision in rural areas.

Notably, most of the studies were conducted by researchers who are pioneers, or "early adopters," in the use of the technologies they studied (like the author of this chapter). Therefore, allegiance effects must be considered as a significant validity threat. It is important for future research on this subject to be conducted by investigators who are not personally biased pro-technology.

Summary of Research on TAST

Potential Benefits

- High levels of trainee satisfaction with TAST have been reported (e.g., Xavier, Shepherd, & Goldstein, 2007).
- TAST can be effective for increasing supervisee self-efficacy (e.g., Weingardt et al., 2009).
- TAST can be effective for transfer of knowledge (e.g., Rees et al., 2009).
- TAST can increase supervisee self-disclosure and reduce inhibition (e.g., Cummings, 2002).
- Internet-based training programs are highly efficient due to scalability (e.g., Weingardt et al., 2009).
- Videoconference supervision encouraged some supervisory dyads to prepare more thoroughly for supervision (e.g., Sørlie et al., 1999).
- TAST can be effective for international and cross-cultural supervision (e.g., Panos, 2005).
- The supervisory working alliance and collaboration can be maintained with TAST (e.g., Reese et al., 2009).
- TAST can be effective for distance-based live one-way-mirror supervision (e.g., Rousmaniere & Frederickson, 2013).

Potential Risks

- Challenges in understanding nonverbal communication could be heightened by electronic communication (e.g., Vaccaro & Lambie, 2007).
- Supervisors may be unable to provide help from a distance, or may be unfamiliar with local laws and regulations (e.g., Abbass et al., 2011).
- Risks of cultural misunderstandings may be increased by geographic distance between supervisors and supervisees (e.g., Powell & Migdole, 2012).
- Videoconference supervision may cause heightened anxiety in some supervisees (e.g., Sørlie et al., 1999).
- Training via videoconference may not be as effective as in-person training (e.g., Sholomskas et al., 2005) or mixed in-person and distance TAST ("blended learning," e.g., Weingardt et al., 2006).

Table 9.1 Videoconference software.

Software	*Price*	*Notes*
http://www.skype.com	Free for one-on-one, $10/month for group	Encrypted but not "secure"
http://www.vsee.com	Varies	HIPAA-compliant, PC only
http://www.ISupelive.com	$50+	For use with IPad
http://www.via3.com	$29/month	PC only
http://www.webex.com	Varies	PC and Apple
http://www.nefsis.com	Varies	PC only
Facetime	Free with iPad & iPhone	HIPAA compliant
Google video chat	Free	PC and Apple
Adobe Connect	$45+/month	PC and Apple
http://www.oovoo.com	Free	PC and Apple

Videoconference technology

The technological development with arguably the greatest impact on clinical supervision and training over the past decade is the rapidly increasing accessibility of videoconferencing (Table 9.1). Also termed "synchronous E-learning" (Weingardt et al., 2009), a videoconference permits two or more individuals to communicate simultaneously by audio and video via the Internet. Dedicated videoconference systems have been used for clinical purposes for over two decades (e.g., Stamm, 1998). However, the high cost of dedicated videoconferencing systems make them largely impracticable for use by individual clinicians. Over the past decade, however, the rapid rise in Internet connectivity speeds and decrease in computer cost has greatly increased the accessibility of videoconference technology. In the first quarter of 2012, the average global Internet speed was 2.6 Mbps (Akami, 2012; first-world countries had substantially higher average speeds), which is five times greater than the speed recommended for good quality videoconferencing. Readers can test their personal Internet connection speed at http://www.speedtest.net.

Multiple large technology companies provide free software for individual and group videoconferencing (e.g., Skype, Google). Most new personal computers, smart phones, and tablet computers come with videoconference software preinstalled. Although most videoconference programs use strong encryption protocols, they are not considered "secure" because employees of the videoconference company can listen in on calls. (However, it is worth noting that this risk is theoretically no greater than the risk of a telephone company employee "listening in" on a supervision or psychotherapy session done via telephone.) For this reason, it is important to fully inform supervisees about the limits of confidentiality, and patient consent should be obtained if Protected Health Information (PHI) is going to be transmitted over videoconference. Videoconferencing software that permits a level of security that is HIPAA compliant is now available at affordable pricing (e.g., http://www.vsee.com).

Reliability

The reliability of videoconference is mixed, so users should expect occasional problems with dropped calls or poor connectivity (e.g., Powell, 2011). For example, in the author's experience using a range of different videoconference software weekly for over three years at both a University Counseling Center and private practice, about 20% of calls had connectivity problems. Group videoconference requires more Internet bandwidth and thus may have worse reliability. The reliability issues with videoconference are often due to connectivity problems in the international Internet network, which is beyond the control of users. Network problems can affect all videoconference software companies, so no particular videoconference software has yet been demonstrated as more reliable than others. Thus, supervisory dyads should only use videoconference if they are comfortable with these reliability constraints, and backup plans should be designated (e.g., phone). To improve reliability, the following methods are recommended: (a) get the fastest Internet connection available in your area; (b) close Internet-intensive programs running in background while using videoconference (e.g., Internet-based file-sharing software); (c) limit the use of "screen sharing" features; and (d) turn off the video camera when Internet connectivity is poor.

Originally, videoconference was largely used to increase the accessibility of supervision in rural areas (e.g., Rees & Haythornthwaite, 2004; Stamm, 1998) However, it is increasingly being used by urban clinicians who seek supervision or training in particular specializations from geographically distant experts (e.g., Abbass et al., 2011; Rousmaniere & Frederickson, 2013). Videoconference is also being adopted for wide-scale use by large organizations. For example, the China American Psychoanalytic Alliance (CAPA) runs a program that uses videoconference to let a pool of 400 Western experts provide psychodynamic psychotherapy training via videoconference to 160 Chinese students across 18 cities in China (Fishkin, Fishkin, Leli, Katz, & Snyder, 2011).

The body of research on videoconference TAST is growing rapidly; highlights of this research are described here. In a study of six supervisory dyads using mixed videoconference and in-person supervision, Sørlie et al. (1999) found that the videoconference sessions were equivalently effective as the in-person sessions for communication and maintaining the supervisory working alliance, but included more disruptions than the in-person sessions. Although the videoconference supervision initially caused more anxiety in some supervisees, it also encouraged supervisees to prepare for supervision better and disclose more in supervision (Sørlie et al., 1999). Coker et al. (2002) reported the results of two studies that included 13 practicum students who had a combination of supervision by e-mail, text chat, videoconference, and in-person. Supervisees had mixed reports, with some reporting a preference for in-person supervision (Coker et al., 2002). In a study with 76 school counselor trainees, Conn, Roberts, and Powell (2009) found mixed in-person and videoconference training (also called "blended" training;Weingardt et al., 2006) to have better outcomes than solely in-person training. Rees and Gillam (2001) ran a pilot videoconference CBT training program for 12 therapists at remote clinics across Western Australia. In post-training assessments, most participants rated the training as effective, although three

of the therapists reported that they would have preferred training in person (Rees & Gillam, 2001). In a follow-up assessment seven years later, data from 48 participants who had taken the CBT training program suggested both a significant increase in knowledge of CBT and positive satisfaction ratings about both content and delivery method (Rees et al., 2009). Xavier et al. (2007) studied the use of videoconference to provide group training and supervision to 20 mental health professionals working with oncology patients. Participants largely reported high levels of satisfaction with the course, with large gains in clinical knowledge and confidence (Xavier et al., 2007). In a study of nine counselor trainees, Reese et al. (2009) found that ratings of the supervisory working alliance, trainee satisfaction, and trainee self-efficacy were similar in both videoconference group supervision and in-person group supervision formats. Likewise, in a study on the use of videoconference-based supervision for international social work practicum students, trainees reported high levels of satisfaction with the technology (Panos, 2005). Weingardt et al. (2009) examined the combination of videoconference supervision and Web-based training software for cognitive-behavioral substance abuse training, and found positive effects on counselor knowledge and self-efficacy. Preliminary results from recent studies have found videoconference to be effective for training in behavioral activation (Puspitasari, Kanter, Murphy, Crowe, & Koerner, 2013), functional analytic psychotherapy (Kanter, Tsai, Holman, & Koerner, 2013), and school-based autism interventions (Ruble, McGrew, Toland, Dalrymple, & Jung, 2013).

Videoconference for live one-way-mirror supervision

A promising new use of videoconference technology is to provide live one-way-mirror supervision at any distance, from the next room to across the country, termed remote live supervision (RLS; Rousmaniere & Frederickson, 2013). In RLS a supervisor watches a live psychotherapy session via the Internet, and gives guidance to the therapist in real time. RLS removes the geographic restrictions of traditional in-person live supervision, allowing "live" training in any location with a good Internet connection. The use of videoconference for live supervision was possibly first proposed by Weingardt (2004). Rousmaniere and Frederickson (2013) found RLS to be effective for advanced, postgraduate training in Intensive Short-Term Dynamic Psychotherapy. Angelita Yu recently developed iSupe, an innovative new "app" that utilizes the iPad for live supervision, available at http://www.iSupeLive.com. Students using iSupe have reported increased perceived support and challenge in supervision, higher willingness to take risks in therapy sessions, additional client focus, and stronger supervisory bonds (Yu & Coiro, 2013).

E-mail and text chat supervision

Clingerman and Bernard (2004) studied the use of e-mail as a supervision tool supplemental to in-person supervision. Findings from a qualitative analysis of 137 e-mails sent by 19 students suggest that e-mail "should be considered a worthwhile supplement to traditional supervision modalities" (p. 93; Clingerman & Bernard, 2004). Likewise, qualitative analysis of supervision e-mails in three other studies (Graf & Stebnicki, 2002; Luke & Gordon, 2011; Stebnicki & Glover, 2001) suggest e-mail

can be a positive addition to traditional in-person supervision. Three studies (Butler & Constantine, 2006; Cummings, 2002; Gainor & Constantine, 2002) have found e-mail and text chat to be effective for peer group counseling supervision. In a quantitative N of 1 study replicated five times, Chapman et al. (2011) found supervision via text chat and e-mail to be correlated with increased trainee self-efficacy.

Web-based training

Another growing Internet-based training method is putting training materials online (e.g., treatment manuals), termed "Web-based training" (WBT; Weingardt et al., 2006). In a controlled study comparing WBT, in-person training, and a control group with 166 substance abuse counselors, Weingardt et al. (2006) found the two training methods to be equivalent in knowledge transfer. In another study of 147 substance abuse counselors, Weingardt et al. (2009) found that two methods of WBT were both effective at increasing CBT knowledge and counselor self-efficacy.Weingardt et al. note that WBT can be highly cost-efficient for delivering training to large populations: after the initial costs of putting a training program online are paid, the costs of allowing access to extra clinicians is relatively minor. The authors propose that the "most effective clinical training applications may use a 'blended delivery' format that leverages the strengths of both WBT and face-to-face training" (p. 23; Weingardt et al., 2006). In a study with 78 substance abuse counselors, Sholomskas et al. (2005) found that adding a WBT component to traditional paper treatment manuals improved training outcomes, but not as much as in-person supervision.

Technology-based continuous assessment of clinical outcomes

Another new technological development becoming adopted in supervision and training is the use of computer software to facilitate session-by-session clinical outcome assessment, also called "continuous assessment" (CA; Sparks, Kisler, Adams, & Blumen, 2011) and "contextualized feedback systems" (CFS; Bickman, Kelley, & Athay, 2012). With CA software, clients can complete outcome measures on a desktop computer, laptop, tablet, or their smartphone, while still in the clinician's waiting room. The software can automatically graph the client's progress and highlight risk factors, such as projected clinical deterioration or suicidality. CA software greatly reduces the paperwork and time required by paper outcome measures, making it easier for supervisors to integrate continuous assessment into their supervision, and easier for licensed clinicians to add a quantitative tool to their self- and peer-supervision. Whipple et al. (2003) developed a package of "clinical support tools" (CSTs) that provides session-by-session feedback to clinicians on clients that are at risk for deterioration, via the Internet-based OQ Analyst software package (Lambert, Harmon, Slade, Whipple, & Hawkins, 2005). In a controlled study, therapists using the CSTs had reduced dropout rates, achieved better clinical outcomes, and had a reduced likelihood of client deterioration (Whipple et al., 2003).

Miller, Duncan, Sorrell, and Brown (2005) developed the Partners for Change Outcome Management System (PCOMS) that utilizes the Outcome Rating Scale (ORS) and Session Rating Scale (SRS), ultra-brief measures of clinical outcome and the therapeutic working alliance. In controlled studies (e.g., Anker, Duncan, &

Sparks, 2009), therapists using PCOMS achieved significantly better clinical outcomes. Two additional examples of CA technology are the Evidence-Based Assessment System for Clinicians, a collection of more than 30 Web-based assessment measures covering a wide range of issues, such as gambling, attention deficit hyperactivity disorder (ADHD), sports anxiety, and alcohol use, all of which can be completed by clients via the Internet or their smartphone (Smith et al., 2011), and the Contextualized Feedback System, a collection of Web-based measures designed for couples and family therapy (Bickman et al., 2012). While these tools were designed to aid in clinical treatment, they are also suitable for supervision of trainees or to aid licensed clinicians in self-supervision.

Software for Continuous Assessment (CA)

- OQ-Analyst (http://www.oqmeasures.com)
- CCAPS (http://ccmh.squarespace.com/ccaps/)
- Carepaths (http://www.carepaths.com.)
- ASIST (http://www.clientvoiceinnovations.com)
- Wellness Check (http://www.wellnesscheck.net)
- MyOutcomes (http://www.myoutcomes.com)
- FIT-Outcomes (http://www.FIT-Outcomes.com)
- CORE (http://www.coreims.co.uk)
- Celest Health (http://www.celesthealth.com)

Computer-based training software

Another recent line technological development are computer programs that facilitate training in specific psychotherapy skills. Two examples are Calipso, which aids in CBT training, and Coherence in Case Conceptualizations, which helps trainees learn to make individualized case conceptualizations (Berger, 2004). The Intensive Feedback Tool helps clinicians learn to identify clinically relevant information (Caspar, Berger, & Hautle, 2004). Beutler and Harwood (2004) developed the Systematic Treatment Selection, a virtual reality (VR) training program that helps trainees learn clinical assessment and treatment planning.

Video-coding software

One innovative new line of development is software that trains clinicians to code videotapes of therapy sessions. The Achievement of Therapeutic Objectives Scale (ATOS) is a Web-based program that trains clinicians to systematically review videos of psychotherapy sessions, starting with videos of established expert therapists (McCullough, Bhatia, Ulvenes, Berggraf, & Osborn, 2011). The System for Observing Family Therapy Alliances software package (e-SOFTA) focuses on training and supervision in family therapy (Escudero, Friedlander, & Heatherington, 2011). Notably, both ATOS and e-SOFTA are free for users, and are both being used for

training in psychotherapy process research (Escudero et al., 2011; McCullough et al., 2011).

Electronic mailing lists and web forums as virtual consultation communities

Clinically focused electronic mailing lists serve effectively as Internet-based consultation communities, in which clinicians give and receive informal peer consultation via e-mail. Some mailing lists focus on a therapeutic modality, for example, the Experiential Dynamic Therapies (EDT) mailing list, where more than 400 clinicians ask consultation questions and have discussions concerning EDTs (A. Kalpin, personal communication, October 20, 2012). Other listservs have a diagnostic focus (e.g., the Dissociative Disorders listserv), a job sector focus (e.g., the American College Counseling Association electronic mailing list), or serve national or state-level professional organizations (e.g., the Alaska Psychological Association electronic mailing list). Although research on clinically focused listservs is not yet available, anecdotal evidence suggests they are widely used, and it is probable that most therapeutic modalities and diagnostic foci have a dedicated listserv. This is an important area for future research, as an increasing number of clinicians are using listservs for informal clinical consultations.

Another new development is clinically focused Web forums, in which clinicians give and receive peer consultation via message boards. For example, as of October 2012, the International Center for Clinical Excellence (ICCE) Web site had than 4,000 members who use forums to discuss topics such as "Using Outcome Measurements in Supervision "and develop standards for training, certification, and core competencies (S. D. Miller, personal communication, October 22, 2012).

Technology Integrated Into a Supervision and Training Program: A Case Example

The following is a case example of how technology can be fully integrated into a clinical training program, and utilized to enhance clinical supervision, from the practicum for clinical psychology doctoral students at the University of Alaska, Fairbanks, Student Health and Counseling Center.

Electronic medical records

All client charts at the clinic are 100% electronic, using the "Point and Click" secure e-chart software package. Paper documents, such as a release of information requests or consents for treatment, are scanned into the electronic charts and then shredded.

Outcome monitoring

Starting with their first session, all counseling intakes complete the Outcome Questionnaire (OQ-45), an overall assessment of mental health (Lambert et al., 2005), using an online program called OQAnalyst. This software allows both the trainee and

Table 9.2 (a) Literature review: Original research since 2000 that address internet-based technologyfor supervision and/or training.

Original research studies	*Type of study*	*Technologies studied*	*Tx modalities*	*No. of participants*	*Participant demographics*	*Outcomes assessed*	*Country*
Butler and Constantine, 2006	Controlled study	Web-based peer group supervision	School counseling	24	First year school counselor trainees	Collective self-esteem scale, case conceptualization skills	United States
Chapman et al., 2011	*N* of 1 A/B (replicated 5×)	E-mail, text chat	Counseling	5	Counselor self-efficacy scale, Evaluation of Counseling Behaviors scale, Computer Competency and Comfort Scale, Distance Education Course Satisfaction Rating Inventory Survey	Counselor self-efficacy, course satisfaction, competency	United States
Clingerman and Bernard, 2004	Mixed qualitative/ quanitative study	E-mail supervision	Counseling	19	Counselor trainees	Content of e-mails, professionalism at practicum	United States
Coker and Schooley, 2009	Qualitative analysis	Web-based counselor education and supervision	Mental health counseling, marriage and family counseling, school counseling	77	Counselor trainees, 1st–3rd year	Supervisory working alliance	United States

Coker et al., 2002	Two small-*N* quantitative studies	Blended (text chat & video chat) supervision	Counseling	8.5	1st year counselor trainees	Supervisory working alliance	United States
Conn et al., 2009	Controlled study	E-mail and videoconference supervision	School counseling	76	1st year school counselor trainees	Supervisory working alliance, Supervision Questionnaire, Web-Based Distance Group Satisfaction Survey	United States
Cummings, 2002	Qualitative analysis	E-mail, text chat	Peer group supervision	3	Counselor trainees	Analysis of e-mail and chat content	United Kingdom
Gainor and Constantine, 2002	Controlled study	Web-based peer group supervision	School counseling	45	Novice school counselor trainees	Multicultural case conceptualization exercise, Supervisee Satisfaction Questionnaire	United States
Graf and Stebnicki, 2002	Qualitative analysis	Blended (e-mail) supervision	Rehabilitation counseling	3	Practicum trainees	Analysis of e-mail content	United States
Haythornthwaite, 2002	Controlled study	Videoconference training	Youth counseling	32	Licensed clinicians	Training questionnaire	Australia
Kanter et al., 2013	Controlled study	Blended (videoconference) supervision	Functional analytic psychotherapy	16	Mixed	Measures of skills acquisition and satisfaction with training	United States

(*Continued*)

Table 9.2 (a) (*Continued*)

Original research studies	*Type of study*	*Technologies studied*	*Tx modalities*	*No. of participants*	*Participant demographics*	*Outcomes assessed*	*Country*
Kobak, Craske, Rose, and Wolitsky-Taylor, 2013	Pre-/post-quantitative study	Web-based training and remote live supervision	CBT (anxiety disorders)	39	Mixed	Measures of skills acquisition and satisfaction with training	United States
Luke and Gordon, 2011	Qualitative analysis	Blended (e-mail) supervision	School counseling	6	School counselor interns	Analysis of e-mail content	United States
Luke and Gordon, 2012	Qualitative analysis	E-mail supervision	Mixed	38	Counselor trainees	Discourse analysis	United States
Panos, 2005	Qualitative analysis	E-mail and videoconference supervision	Social work	24	Social work practicum trainees	Interviews	United States
Puspitasari et al., 2013	Pre-/post-quantitative study	Videoconference training	Behavioral activation	9	Licensed clinicians	Measures of skills acquisition and satisfaction with training	United States
Rees and Gillam, 2001	Pre-/post-quantitative study	Videoconference training	Varried	11	Licensed clinicians	Satisfaction questionnaire, CBT Knowledge test	Australia
Reese et al., 2009	Pre-/post-quantitative study	Videoconference training	Varried	48	Licensed clinicians	Satisfaction questionnaire, CBT Knowledge test	Australia

Reese et al., 2009	A/B/A study	Blended (videoconference) supervision	Varried	9	Counselor trainees	Supervisory working alliance, Counselling Self-Estimate Inventory, Supervisory Satisfaction Questionnaire	United States
Renfro-Michel, O'Halloran, and Delaney, 2010	Controlled study	Blended (virtual reality, video podcast)	Counselor education	14	Counselor trainees	Academic grades	United States
Ruble et al., 2013	Controlled study	Web-based training	Autism interventions	49	Teachers	Treatment adherence measures	United States
Sholomskas et al., 2005	Controlled study	Web-based training	CBT (substance abuse)	78	Licensed clinicians	CBT adherence and skills	United States
Stebnicki and Glover, 2001	Qualitative analysis	Blended (e-mail) supervision	Rehabilitation counseling	5	Practicum trainees	Analysis of e-mail content	United States
Weingardt et al., 2009	Controlled study	Web-based training	CBT (substance abuse)	147	Licensed clinicians	Provider Efficacy Questionnaire, Maslach Burnout Inventory	United States
Weingardt et al., 2006	Controlled study	Web-based training	CBT (substance abuse)	166	Licensed clinicians	Multiple-choice knowledge test	United States
Xavier et al., 2007	Pre-/post-quantitative study	Videoconference training	Psycho-oncology	20	Licensed clinicians	Questionnaire re: satisfaction, comfort, knowledge gained	United States

Table 9.2 (b) Literature review: Other publications since 2000 that address internet-based technologyfor supervision and/or training.

Other publications	*Type of publication*	*Technologies discussed*	*Tx modalities*	*Country*
Abbass et al., 2011	Case example	Group videoconference supervision	Psychodynamic	Multinational
Barnett, 2011	Discussion of new technologies/approaches	Many	Unspecified	United States
Berger, 2004	Discussion of current literature	Many	Unspecified	Unspecified
Bickman et al., 2012	Discussion of new technologies/approaches	Contextualized feedback system	Couples and family therapy	United States
Bloom and Walz, 2004	Discussion of new technologies/approaches	Many	Counselor education and supervision	United States
Cucciare, Weingardt, and Villafranca, 2008	Discussion of new technologies/approaches	Blended learning, Web-based training	Empirically supported, manual-based therapies	United States
Devereaux and Gottlieb, 2012	Discussion of new technologies/approaches	Internet "cloud"-based record keeping	Unspecified	United States
Fishkin et al., 2011	Discussion of new technologies/approaches	Videoconference	Pschodynamic	China

Gilbert and Maxwell, 2011	Review of literature	Many	Unspecified	United States
Jerome et al., 2000	Discussion of current literature	Many	Unspecified	United States
Kanz, 2001	Discussion of current literature	Many	Unspecified	United States
Lessing and Blignault, 2001	Survey of extent of use of TAST	Videoconference	Unspecified	Australia
McAdams and Wyatt, 2010	Survey of state regulations re: cybersupervision	Many	Unspecified	United States
McIlwraith, Dyck, Holms, Carlson, and Prober, 2005	Discussion of new technologies/approaches	Blended (videoconference) supervision	Unspecified	Canada
Miller et al., 2003	Case example	Blended (videoconference, e-mail, bulletin boards, chat)	Child psychology	United States
Panos et al., 2002	Discussion of ethical issues	Videoconference	International social Work	Multinational

(*Continued*)

Table 9.2 (b) (*Continued*)

Other publications	*Type of publication*	*Technologies discussed*	*Tx modalities*	*Country*
Rees and Haythornthwaite, 2004	Discussion of new technologies/approaches	Many	Unspecified	Australia
Rousmaniere and Frederickson, 2013	Case example	Remote live supervision via videoconference	Psychodynamic	United States
Smith et al., 2011	Discussion of new technologies/approaches	Many	Many	United States
Vaccaro and Lambie, 2007	Discussion of ethical issues	Many	Unspecified	United States
Weingardt, 2004	Discussion of new technologies/approaches	Web-based training	Empirically supported, manual-based therapies	United States
Wolf, 2011	Discussion of new technologies/approaches	Many	Unspecified	Multinational
Wood, Miller, and Hargrove, 2005	Discussion of new technologies/approaches	Many	Unspecified	United States

Note. "Blended" = mix of in-person and technology-assisted supervision or training.

the supervisor to easily monitor client progress, and provides alerts for risk factors (e.g., suicidality, substance abuse, and clients at risk for clinical deterioration).

Videotaping counseling

Trainees videotape their counseling sessions using two webcams connected to a desktop computer. One webcam records the client and the other records the trainee. A program called Wirecast combines the two video streams into one side-by-side video (also called "picture-in-picture") that is automatically saved directly to a secure network drive, without the need for tapes, CDs, or DVDs. Videos can be viewed from any counseling office, making it easy to review the videos in individual or group supervision. After being used in supervision, videos are deleted from the network. As an additional layer of security, the network drive is encrypted using TrueCrypt software, protecting videos from unauthorized viewing, even by University Information Technology system administrators.

Training via videoconference

Expert psychotherapy trainers from around the country provide live trainings via videoconference software. Because the software's security features permits HIPAA compliance, the trainers can present demonstration videos of real psychotherapy sessions and trainees can present real cases for consultation. These trainings can be saved on a secure drive for future use.

Remote live one-way-mirror supervision

HIPAA-compliant Web-based videoconference software and webcams are used for live one-way-mirror supervision. This allows the supervisor to provide live one-way-mirror supervision between any two offices in the counseling center, without the need for expensive one-way-mirrors to be built into the walls. The software also permits trainees to get live one-way-mirror supervision from any psychotherapy expert in the world who has a good Internet connection. Recordings of these sessions can be saved and used for training purposes.

Post-treatment feedback

After terminating treatment (or dropping out), clients are offered the opportunity to take a secure online survey about their experiences in counseling. This feedback is used for training, quality assurance, and research purposes.

Concluding Thoughts and Future Directions: The Inventor/Experimenter Model of Supervision

Most of the research and theorizing on TAST has focused on evaluating whether TAST can approximate the experience of traditional in-person supervision and training. While this approach is valid, it implies an assumption of superiority in traditional

supervision methods that may be limiting or even inaccurate. The traditional methods of supervision are in wide use not because they were determined by research to be the most effective (e.g., Ellis & Ladany, 1997), but rather because they were the only methods available. The assumption that the "old methods are best" may cause the field a disservice, by blinding us to new opportunities and alienating a younger generation of supervisees who feel more comfortable with new technologies. Rather than questioning whether TAST is "as good" as traditional supervision, supervisors and researchers are encouraged to instead ask, "What is now possible, and how can it serve my supervisees and their clients?" The roles of a supervisor are multifaceted: in addition to being gatekeepers, supervisors are also, by necessity, clinical explorers and inventors. The same skills that enable supervisors to be flexible and adaptable in an always-changing clinical environment can serve them well in the new technological frontier.

Recommendations for Internet Security

1. The single most helpful and easy security procedure supervisors can use is making their passwords "strong": do not use birthdays, names, or words in the dictionary; use at least eight characters; and use a combination of numbers, special characters (e.g., *&@), and upper/lower-case letters. Do not use the same passwords for multiple accounts, and change your passwords regularly.
2. Be extremely careful when downloading attachments in e-mails or clicking on links in e-mails. This is possibly the most common way to have your e-mail account hacked.
3. Find out if your TAST device or software uses the Internet cloud. If so, do not use it for confidential matters, or make sure it is securely encrypted.

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