Developing Technical Expertise to Support Synchronous Online Classes

The Columbia University School of Social Work Institute on Technical Skills for Online Event Production

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Abstract—Skilled technical support is essential to enable webinars, synchronous online classes, and other live online events to run smoothly. Having a technical support professional dedicated to preventing and troubleshooting technology issues allows presenters to focus on the substance of online events. This article shares an example of an interactive online training program that develops the technical skills and expertise needed to support live online events hosted on web conferencing platforms. The program, called the Institute on Technical Skills for Online Event Production, blends asynchronous homework and synchronous classes in an intensive, hands-on format. Run by Columbia University School of Social Work's Online Campus, this Institute trains social workers to become technical support specialists for online courses and events, and the approach is replicable across academic disciplines and for workplaces.

Keywords—Synchronous online classes, live online events, virtual events, webinars, training, technical support, web conferencing, blended learning, elearning, e-learning, asynchronous work, education, instruction

1 Introduction

1.1 Introduction to the institute on technical skills for online event production

The Columbia University School of Social Work (CSSW) Institute on Technical Skills for Online Event Production (the Institute) is a training program that develops CSSW alumni into technical experts with the skills to manage the production of online classes and events [1]. The Institute blends three synchronous online sessions with asynchronous homework assignments in CSSW's learning management system, for about 15 hours of rigorous training. Participants develop new marketable skills, connect with other CSSW alumni, learn the basics of CSSW's online education platforms, and may go on to apply for roles with CSSW's Online Campus, working on online courses for the Masters of Science in Social Work program.

The Institute was honored by the International E-Learning Association with an International E-Learning Award in their Academic Division, Blended Learning Category [2].

1.2   Context for the creation of this institute

CSSW launched its online Master's program in 2015 [3], [4], with a primarily synchronous course model. Courses involve weekly classes in the Adobe Connect web conferencing platform, and homework in the Canvas learning management system. As the first and only top three school of social work in the United States [5] and first and only Ivy League university to offer a fully online Master's in Social Work, expectations for the quality of the online courses are high, and one way that CSSW supports high quality is via the unique instructional team make-up. Each Online Campus course's instructional team includes an Instructor and a Live Support Specialist who manages the technology for all of the live class sessions throughout the full semester [6], and larger classes also include an Associate who assists the Instructor as a teaching assistant. All of the instructional team members, including the Live Support Specialist, are present for every class session; this is different from support models that offer email helpdesk tech support or on-call emergency tech support.

Live Support Specialists need to pass the Institute on Technical Skills for Online Event Production in order to qualify to join the Online Campus, and Instructors and Associates must pass another CSSW institute, the Institute on Pedagogy and Technology for Online Courses [7]. Members of the Online Campus can also take both institutes, and after passing are welcome to join additional ongoing training, including intensive workshops and an annual online faculty development series [8].

The Institute on Technical Skills for Online Event Production was created by Kristin Garay and launched in summer 2017. It is offered twice a year, and eight cohorts have taken the Institute as of November 2020. It expanded upon and replaced a 2016 training series led by Matthea Marquart, and in 2020 it evolved to being co-facilitated and co-led by Kristin Garay and Krystal Folk, working with a team of experienced Live Support Specialists.

1.3   Skilled technical support benefits the quality of synchronous online courses

The literature discusses the benefits of live online classes for enabling interactivity and connection [9] and multi-level communication between students and instructors [10], while also pointing out the need for technical support [11], [12] and the fact that inevitable technical issues or a lack of instructor technical competencies can seriously disrupt synchronous classes [13], [14], [15]. Faculty have long expressed concerns about online teaching, including the amount of time and effort needed to teach online as well as a lack of support for teaching online [16]. Technical support experts like CSSW's Live Support Specialists can free up instructors to focus on teaching, engaging students, and innovating in the online classroom, rather than being distracted by managing interactive tools such as polls, media, chat, and virtual breakout rooms, or

by needing to problem-solve with students around technical issues, such as connectivity, audio, webcam, visuals, permissions, software, and hardware issues [17], [18].

CSSW's Live Support Specialists are hired from a pool of alumni who have taken at least one CSSW online course as a student. They are not required to have prior experience with web conferencing or technical support, and are instead hired for their Master's-level understanding of social work and their ability to listen, diagnose issues, problem-solve, and empathize with students experiencing technical issues. Their social work skills can contribute to defusing tech support rage [19], [20], and resolving technical issues in an empowering way. Their knowledge of and commitment to social work education is also important for their active involvement as members of course instructional teams on discipline-specific topics such as trauma, social welfare policies, and anti-Black racism. These hiring priorities mean that this training Institute must take participants with relatively beginner-level skills in producing live online events, and turn them into experts.

1.4 Technical support resources for online courses at other universities

While there is literature available about how universities train faculty to teach online, there is little information about how universities train their technical support specialists for online courses, and technical support resources provided by universities for online courses vary widely. Examples of how universities train faculty on technical skills for teaching online include: at Midlands Technical College in South Carolina, a Media Services team provides faculty with training on technical skills required for teaching online and gives faculty a list of resources to reference [21]; at the University of Southern California, faculty have access to online resources that are updated weekly with information such as IT governance best practices [22]; at Auburn University, faculty learn technical skills and learning tools via an Online Teaching Showcase course [23]; and at Harvard University, faculty have access to a page with links to self-guided training tools about online learning technology [24]. A survey of 500 U.S. university professors found that 45% of lecturers do not receive IT setup support from their institutions, and 60% of lecturers say they have experienced stress based on institutional pressure to use technology [25].

The limited research published about the structure of technical support for online courses and the training design for technical support specialists working on online courses is a gap in the literature, and this article aims to contribute an example that may be helpful for institutions creating these programs, especially as more universities across the globe transition to largely online learning practices during 2020.

2 Program Design

2.1 Goals

CSSW's Online Campus is growing steadily over time, which increases the number of online courses offered each year. This means that the Online Campus continu-

ally needs to recruit and train additional potential Live Support Specialists. The Institute has a key role in this growth, and the overall goal of offering this Institute is to strengthen the technical skills of the CSSW community and build a skilled team to support the online program. In addition, the Institute provides a professional development opportunity to CSSW's online Instructors and Associates, as well as CSSW administrators and alumni, who would like to learn more about the technical behind-the-scenes of producing online classes and events.

The Institute's specific objectives include instructing participants on how to (1) utilize technology to design an accessible and interactive online classroom, (2) create and manage course content within a CSSW online course site, (3) maintain CSSW's professional standards of presentation through monitoring the on-camera image of instructional teams, (4) provide a technology orientation and effectively communicate when providing technical support while reflecting social work values, and (5) understand the technical support role and responsibilities for online classes and events.

2.2 Structure

The Institute on Technical Skills for Online Event Production consist of two parts: asynchronous homework and synchronous class sessions. Table 1 summarizes the homework assignments and the structure of the live class sessions.

Table 1. Outline of homework assignments and live class sessions

Timing	Activities
Pre-work before the first session	"Getting Started" readings and accompanying quizzes "Technical Support Role for Online Classes" readings and accompanying quizzes to gauge understanding of the tech support role and responsibilities "About the Technology" readings and accompanying quiz to assess understanding of the online platforms used in this Institute "Adobe Connect Basics" readings
The first session	Welcome and "Getting to know you" activity Review information about the Institute and technical support role and responsibilities Agenda outline of the three live sessions Adobe Connect basics Participate in advanced level activity to practice of web conferencing skills Homework review and questions Pop quiz Breakout activity - a hands on activity to practice the skills learned thus far Question & answer and wrap up
Homework	"Challenges of Providing Technical Support" discussion post assignment that includes responding to peers "Canvas Basics" readings, Canvas profile creation or update, and quiz to assess basic Canvas skills "Preparing for an Online Event" readings and assignment to practice setting up one's webcam image and provide feedback to peers Review "Using Adobe Connect for Online Classes and Events Part 1" and complete a recorded assignment to practice explaining Adobe Connect tools to online event participants

The second session	Welcome back and review Homework questions Adobe Connect advanced review Peer learning activity to practice with the web conferencing tools Question & answer and wrap up
Homework	"Email Communication" discussion post assignment Review "Using Adobe Connect for Online Classes and Events Part 2" and complete a recorded assignment to practice setting up an Adobe Connect classroom and conducting a guided tour Set up Adobe Connect layouts and submit screengrabs of them Find information in the back end of Adobe Connect and submit screengrabs of where the information was found Survey of interest in applying for a Live Support Specialist role
The third session	Overview of what was learned in the three sessions Peer learning activity Homework questions Discussion of effective approaches to problem solving and troubleshooting Question & answer and wrap-up
Final assignment	Provide feedback on the Institute

Institute participants are expected to complete homework assignments before each class session. This allows for an in-depth dive into the vast amount of material in a short period of time. Homework assignments consist of readings, practice assignments, quizzes, and videos. Figure 1 shows part of the table of contents, or modules view, of the course site where all course material and assignments are located.
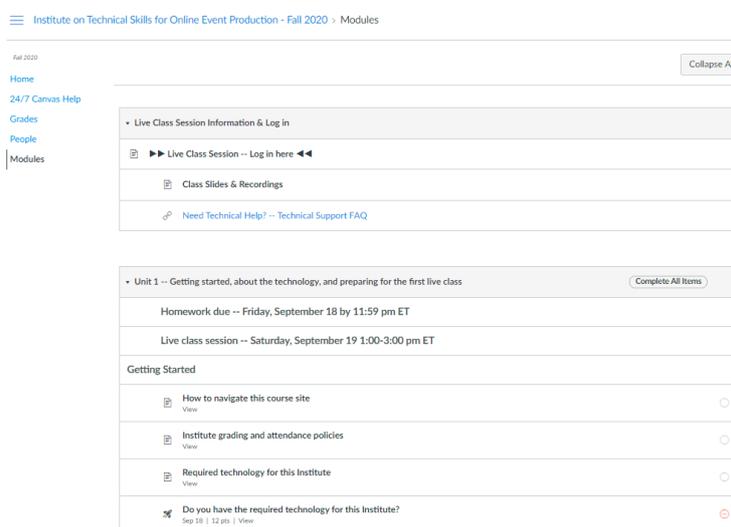

Fig. 1. The Modules section on the Institute Canvas Course Site

Assignments are graded within a 48-hour timespan, using a detailed rubric. One assignment rubric example is shown in Figure 2. The goal of the homework assignments is to build tech skills, increase critical thinking about tech support through a social work lens, and encourage participants to come to class prepared to ask questions and get more specialized practice. For example, two assignments involve participants recording themselves to demonstrate their expertise of the technical skills. Overall, homework assignments are considered self-guided preparations for classes and provide insight on participants' progress, which informs what is covered during the subsequent class session.

Rubric: Record a test class		
Criteria	Ratings	Pts
Your name is in the Attendees pod instead of the default "TechSkills" name.		2.0 pts
Turn on your webcam and mic before starting the recording. Stay on camera & mic for the entire walk-through.		3.0 pts
Start the recording (name it something you will remember!)		1.0 pts
You will begin in the lobby since that is where the class will begin. Briefly (2-3 seconds) play the music to demonstrate that it is working.		1.0 pts
State your name, and then on mic talk the listener through the class progression as you move between layouts in order. (ex. We start in the lobby with lobby music and a countdown timer. Then when prompted verbally by the instructor I switch to the slides layout. etc.)		2.0 pts
Walk through EVERY layout change and specialized pod in the class agenda in the order stated in the agenda, as if this was a real class. You may end up using the same layout more than once (ex. slides, student discussion, etc.).		4.0 pts
For the YouTube video you uploaded to Adobe Connect (as instructed by the agenda), play it only briefly (2-3 seconds) to demonstrate that it is working.		2.0 pts
When you start the breakout session in the agenda, pause the recording. Move yourself between breakout rooms and provide a unique one sentence answer on each room's note pod in response to the case study provided. This will allow you to test your bird's eye view layout when you end breakouts. Before ending the breakout session, resume your recording.		4.0 pts
For polls - you will display the poll, open the poll, answer the poll as if you were a student, and then close the poll and broadcast results.		2.0 pts
For the main chat pod, you will type a welcome message for students using pink text. Type a follow up message in blue text.		2.0 pts
Ensure that the recording is made public before submitting the assignment.		1.0 pts
Submit the correct link to the recording.		1.0 pts
		Total Points: 25.0

Fig. 2. A sample of a grading rubric

During live class sessions, the facilitators review questions from the homework readings and assignments, and demonstrate web conferencing tools that promote online engagement, giving the participants frequent opportunities to practice. Such tools include polls, status icons, webcam, microphone, chat, and breakout groups. The goals of the live sessions are to more deeply discuss the technical support role and to practice how to interact with and support students and online event participants. Fig-

ure 3 shows the virtual classroom, with one of the facilitators, Krystal Folk, welcoming the participants to a live session.
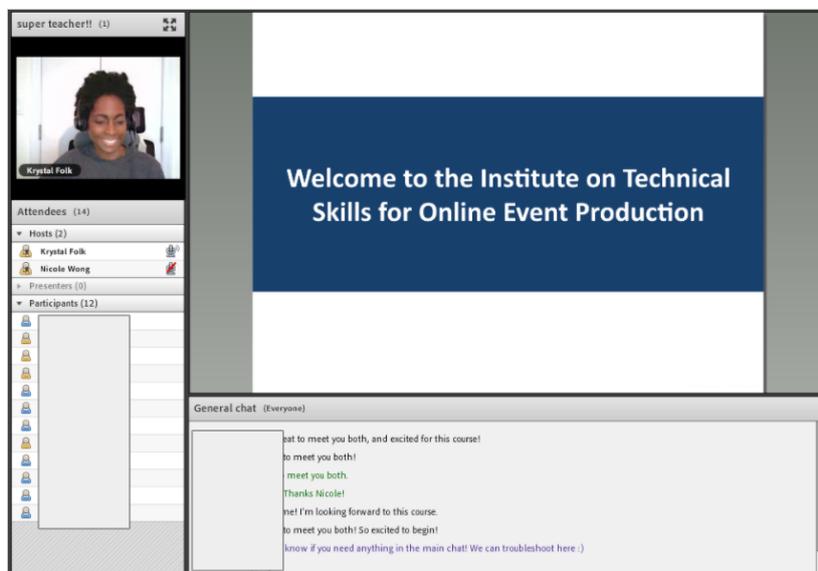

Fig. 3. Screengrab of a live class session

2.3 Logistics

The Institute is open to CSSW alumni and current Instructors, Associates, and administrators, and passing is a requirement for those interested in applying for a Live Support Specialist role within the Online Campus. Passing requires an overall score of 90% or higher on the live class participation and homework assignments; all scoring is done using detailed rubrics.

The Institute cohorts have varied in size, with either up to 25 participants, or up to 50 participants, depending on need and capacity. When the size is restricted to up to 25 participants, only one option is offered for each session, and when the size is restricted to up to 50 participants, two options are offered for each session, for example one daytime session and one evening session that participants can choose from based on their availability. These small class sizes create a sense of community, and provide space for individualized and interactive learning. The three sessions and homework have been offered in two different ways: (1) over the course of three weeks, with homework spread out accordingly, and (2) over the course of two weekends with intensive homework deadlines.

The team that works on this Institute is led by one full time administrator and one variable hour Live Support Specialist, and made up of experienced CSSW variable hour Live Support Specialists who have either passed the Institute or passed the 2016 training that evolved into the Institute. This team helps recruit participants, provides technical support for the live class sessions, scores the assignments within 48 hours of

the assignment deadlines, provides feedback about continually improving the Institute, and answers participants' questions before and during the Institute. They also review the final assignments of participants who are interested in applying for a Live Support Specialist role, and provide feedback about the candidates' skills.

3 Challenges and Limitations

An ongoing challenge for this Institute has been spreading the word to recruit participants. The Institute does not have an advertising budget, and all recruiting is done by word-of-mouth, on personal social media, and via email to CSSW alumni and Online Campus members.

A limitation to studying this Institute has been the inability thus far to design and run a randomized controlled research experiment due to limited resources. However, we have been able to collect data in the course of running the Institute, which is discussed below.

4 Benefits

4.1 Benefits for participants

This Institute is free for CSSW alumni, administrators, and Online Campus Instructors and Associates, and participants gain valuable, marketable professional skills that will benefit future work on online meetings, trainings, webinars, classes, and other online events. Participants who successfully pass the Institute receive a letter certifying completion, a digital badge to share this accomplishment on social media or elsewhere, and language for their resumes. Figure 4 shows an image of the digital badge. In addition, some participants are invited to apply for a Live Support Specialist role with CSSW's Online Campus.

Fig. 4. The 2019 digital badge for those who passed this Institute

4.2   Benefits for CSSW's online program

This Institute contributes to the quality of CSSW's online program in a number of ways. CSSW Online Campus Instructors and Associates who participate in this Institute improve their technical skills and confidence with technology, which supports continuous improvement in teaching their online courses. School administrators who participate in this Institute develop useful skills and knowledge about CSSW's Online Campus, which promotes interdepartmental collaboration and the development of online events that benefit online students. Participants who go on to become Live Support Specialists contribute to the quality of CSSW's online courses and as of the 2019-20 academic year, they are members of the instructional teams of about 125 online courses per year.

In 2018, the Online Campus administration surveyed online instructors and asked about the impact of having a Live Support Specialist as a member of every online course instructional team. The instructors reported that they feel much more comfortable teaching online with a Live Support Specialist than they would teaching without one. Figure 5 shows the results of that survey question.
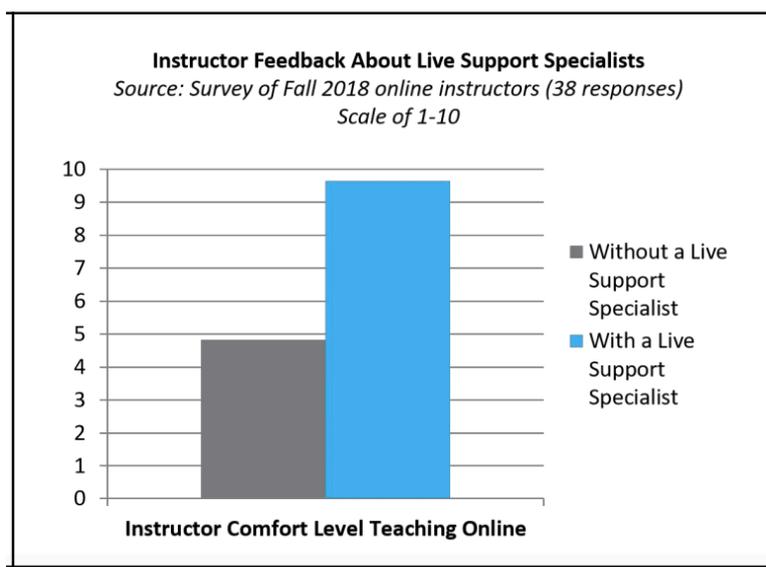

Fig. 5. An illustration of instructor feedback about the value of the
Live Support Specialist role [6]

5   Impact

During the first eight cohorts of the Institute, 118 participants passed with a score of 90% or higher.

At the end of the Fall 2018, Summer 2019, Fall 2019, Spring 2020, and Fall 2020 Institutes, participants were surveyed to collect their feedback, including both partici-

pants who passed and participants who did not pass; prior to Fall 2018, only informal feedback was collected. The respondents rated the overall quality of the Institute, and how likely they were to use the skills and information gained. Their quantitative feedback is in Table 2 and Figure 6, and a sampling of their qualitative feedback is in Table 3. Overall, participant feedback has been positive, with consistently high ratings and positive comments.

Table 2. CSSW's feedback from participants in the online technical institute (n = 91)*.

	On a scale of one to ten, how would you rate the overall quality of this Institute? *Mean (Average)*	**On a scale of one to ten, how likely are you to use the skills and information you gained from this Institute?** *Mean (Average)*
Summer 2017	Not Collected	Not Collected
Fall 2017	Not Collected	Not Collected
Summer 2018	Not Collected	Not Collected
Fall 2018 (n = 19)	9.47	9.31
Summer 2019 (n = 16)	9.63	9.56
Fall 2019 (n = 18)	9.06	9.17
Spring 2020 (n = 28)	9.50	9.39
Fall 2020 (n = 10)	9.20	9.30
Average (n = 91)	**9.37**	**9.35**

*Note that for the initial institutes in Summer 2017, Fall 2017, and Summer 2018, no numerical scale feedback was collected.
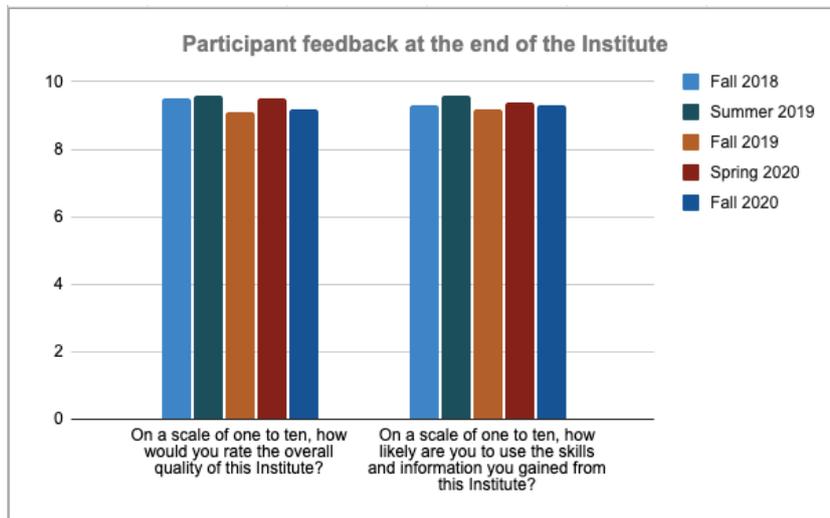

Fig. 6. An illustration of the numerical participant feedback about this Institute

Table 3. Qualitative themes and quotations from participants

Themes	Example Quotations
The Institute was of high quality	"I felt this course was incredibly informative. As someone who has never taken online courses before, this course went at a pace that was easy to keep up with and explained each step very clearly. I enjoyed this class and also found Kristin as the instructor to be an excellent resource and one of the most open and patient people I have encountered as a teacher."
The live sessions were engaging and collaborative	"The live class sessions were extremely helpful to me. I enjoyed being able to interact with others as well as share ideas and information. The instructors were extremely friendly and inviting which made class an experience that I often looked forward to."
The instructional team was patient and knowledgeable	"I think the most helpful part of this institute was the great instructional team. They were all always very patient, and made sure that myself and classmates were on the same page before moving forward."
It was helpful to practice technical skills alongside an experienced instructional team	"The practice homework activities were so useful in building confidence in using Adobe Connect and identifying where more learning would be most helpful. The instructional team's patience and positive attitude helped create a comfortable learning environment."
The Institute reflects social work values	"I really enjoyed the balance in this course between learning new skills and thinking critically about how technology plays a role in our lives as social workers. I learned a lot and was able to connect with other social workers and have some great discussions with them."
The homework often was time intensive	"I'm usually someone who works on a project in pieces/parts. So having to create the layouts, record, upload and use the backend of Adobe all in one setting, under 2 hours was a bit of a challenge for me. It would have been great if I could work on creating half of the layouts and save them, and work on the rest of the layouts another time."
Instructors could provide more guidance in navigating challenges of completing homework assignments	"I found the coursework to be full of meaningful, non-disposable assignments. I stumbled a bit on the first recordings--maybe including a "common errors" infographic (make sure you've shared video; mic on; ppt slides at 1; etc...) to support students in successfully recording in shorter periods of time."

6   Conclusion: Lessons Learned and Recommendations

For those considering running a similar training program, recommendations include continually gathering both quantitative and qualitative feedback, offering the program in different formats, and considering the logistics of course access after the program concludes. Since beginning to formally collect feedback in Fall 2018, it has been helpful to track participant satisfaction over time and gather structured feedback for continuous improvement; for example, when a participant shared that it was difficult to finish one of the longer homework assignments in one block of time, as noted in Table 3, the assignment was redesigned so that subsequent cohorts could either

complete it in one session or return to it across several days. Offering the program in the different formats of three weeks or two weekends has been helpful for operating within scheduling and staffing constraints. As the Institute enters its fifth year, the question of how long to give participants access to the course site and training materials therein has begun to come up. In the past, participants have had indefinite access to the course site, but it may become more feasible to provide a handout with key material instead of ongoing access. Overall, this Institute has provided many benefits to its participants and to CSSW's Online Campus, and other organizations may want to offer their employees something similar.

7   Acknowledgements

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