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The Use of a Small Private Online Course to Allow Educators to Share Teaching Resources Across Diverse Sites: The Future of Psychiatric Case Conferences?

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Abstract

Objective—The authors sought to demonstrate the feasibility of integrating small private online course (SPOC) technology with flipped classroom techniques in order to improve neuroscience education across diverse training sites.

Methods—Post-graduate medical educators used SPOC web conferencing software and video technology to implement an integrated case conference and in-depth neuroscience discussion.

Results—Ten psychiatry training programs from across the USA and from two international sites took part in the conference. Feedback from participants was largely positive.

Conclusion—This pilot demonstrated the feasibility of such a program and provided a diverse audience with the opportunity to engage in an interactive learning experience with expert faculty discussants. This may be a useful model for programs with limited local expertise to expand their teaching efforts in a wide range of topics.

Keywords

Neuroscience; Curriculum; Online learning

This is an exciting time in psychiatry, as new neuroscience research is redefining the fundamental ways in which we understand psychiatric illness [1–3]. Residency directors appreciate the importance of teaching neuroscience alongside traditional psychotherapeutic and psychosocial approaches [1, 4]. However, implementing a new curriculum is daunting, particularly for programs with few resources. To create an engaging and relevant psychiatric

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Compliance with ethical standards

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neuroscience curriculum requires specialized expertise both in adult learning techniques and a broad range of neuroscience content. It also requires significant financial support to underwrite faculty effort. This combination of resources may not be found in a single site.

The National Neuroscience Curriculum Initiative (NNCI) is a collaboration of psychiatry educators and neuroscience experts, with funding from the National Institute of Mental Health, which was formed to address these concerns. The mission of the NNCI is to create a set of shared educational resources, founded on principles of adult learning, to assist programs in teaching neuroscience effectively [5]. The NNCI has already released a series of educational modules with comprehensive teachers guides that can be implemented by faculty with a limited neuroscience background (www.NNCIonline.org). Some resources, though, (such as the “Integrated Case Conference” module) still require direct access to neuroscience experts—a potential challenge for some programs.

Advances in technology are enabling new forms of collaboration that could help address such problems. In the last few years, massive open online courses (MOOCs) and small private online courses (SPOCs) have enrolled millions of students in virtual classrooms and have redefined the traditional boundaries of the university [6, 7]. MOOCs are generally free, easy to access, and open to everyone whereas SPOCs are limited to an invited audience. The advantages of this technology continue to be explored with some educators predicting that online coursework will soon become a commonplace as a means for content delivery [8].

These online courses have also been linked to an increasing emergence of “flipped classrooms,” a style of teaching that eschews traditional lectures in favor of self-directed learning [9]. In its most basic form, a flipped classroom reverses the traditional order of activities. Instead of being presented with core content in a lecture followed by homework, students are expected to watch a lecture (or review materials) in advance. Class time is then used for active learning exercises designed to reinforce educational goals and objectives and enhance learning.

To this end, we set out to conduct a proof of concept SPOC. We describe in this paper our process for developing and staging a multi-site, integrated case conference and in-depth neuroscience discussion [10], using online web conferencing. We share participant data on the effectiveness of this approach and discuss possible future directions.

Methods

Forming a Team

A local four-member team, consisting of a clinician educator psychiatrist, two fourth-year chief residents for education (a position with 50 % protected time to pursue academic scholarship in education), and a fourth-year medical student interested in psychiatry with experience with video technology, met three times in the month prior to the event. Our first meeting was to coordinate logistics, define roles and technical needs, and plan out a dry run of the setup; subsequent meetings consisted of technical run-throughs. The faculty supervisor of this team liaised with the core leadership of the NNCI on a weekly basis for ongoing feedback and guidance.

Engaging Stakeholders

It was a project priority to engage both internal and external stakeholders. Locally, the second-year psychiatry residents were asked whether they would be willing to participate, as the SPOC webcast would be leveraging—and thereby altering—their existing class frame. The class was uniformly in favor of participating. A volunteer from this class was tasked with presenting a clinical case, and we worked closely to support this resident with his write-up and formulation.

Next, three faculty members were invited based on their expertise in teaching and on various facets of the case. These discussants included the following: a research scientist specializing in schizophrenia to incorporate a neuroscience perspective; a psychoanalyst to offer a psychological perspective on the material; and a leader in public psychiatry to offer a systems and recovery-oriented perspective. Faculty discussants were provided a detailed description of the session (including the nature of the webcast) and of their role.

In terms of external stakeholders, outreach was conducted primarily via email to the NNCI learning collaborative, a group (at the time) of more than 150 psychiatry educators who indicated an interest in engaging in NNCI programs. We encouraged individuals to forward this email to any interested parties.

Educational Frame

The SPOC largely followed the multi-perspective case conference format described previously [5, 10]. An email was sent to all participating programs recommending that they distribute the de-identified case to participants so that each student could formulate the material in advance. Links to three brief (10–15 min) videos presenting a basic neurobiological model of schizophrenia were also included so as to enable advanced viewing.

Cases for this course are always de-identified by deleting and/or changing any identifiable personal health information. Because of the expanded audience, we augmented the usual de-identification process by having 3 separate reviewers iteratively alter the case. The class began with the write-up author sharing his formulation (approximately 10–15 min) followed by 15 min for peer supervision. Our goals for this time were to give the residents the opportunity (1) to model peer supervision and (2) to frame questions for the discussants. To ensure confidentiality and maintain a sense of safety, we did not broadcast or record our group's peer supervision. To allow off-site participants to benefit as much as possible from the experience, we encouraged them to conduct a similar peer-supervision discussion.

Following this discussion, at the previously agreed upon time, we began the webcast by asking the discussant faculty members to introduce themselves and then comment briefly (5–10 min) on (1) how they would think about the case from their perspective, and (2) how this formulation would influence treatment planning. An experienced moderator ensured that faculty adhered to time limits and facilitated discussion with the audience. Questions were drawn from both the local group and from online participants.

Following the conference, we conducted a 1-h Scientific Foundations session [10] on the neurobiology of schizophrenia.

Technological Considerations

We used a Logitech HD Pro Webcam C920 placed on a tripod and connected via USB port to a laptop to stream the video feed into web conferencing software. The session was recorded on a separate device so that it could be distributed online at a higher picture quality. Two 220-W equivalent fluorescent standard set lights with accompanying stands and reflective umbrellas were employed to augment the ambient lighting in the conference room. For sound, we deemed the built-in microphones sufficient and opted not to use more sensitive external microphones, which would require more expertise.

We worked with our host institution's webcasting software, which allows for real time discussion via a chat interface. A web link was distributed to participants prior to the session. With this software, there was no limit to the number of participants. As such, participants at each site could use their own personal devices and participate individually. During the session, a team member moderated the chat room, including by soliciting questions. The same team member also moderated a twitter feed (#NNCI) that was set up to facilitate a second medium for comments, questions, and discussion. Questions posed to discussants were drawn from both the local group and from online participants in an alternating fashion.

All of these technological considerations (hardware and software) were tested via two technical run-throughs prior to the conference. Figure 1 shows a detailed outline of the planning process.

We created a brief five-question survey to gauge strengths and areas of improvement using a free online survey resource. The link to the survey was distributed using the conference chat function and by emailing the survey hyperlink to all off-site participants. Thus, both educators and participants could have responded to the survey (though this was not available to the local residents). The Institutional Review Board at Yale University granted an exemption from review under educational exclusion criteria.

Results

Participants were not required to identify themselves (though they could not gain access to the conference without an invitation). Based on volunteered information, participants included residency program directors, individual trainees, and groups of students participating via a single class login, watching together on a projected screen. Based on the number of unique login names (16) and other volunteered information, we know that there were at least 24 participants (in addition to the local second year residents). The group included members from the following: Brown University; Columbia University; Federal University of Minas Gerais, Faculty of Medicine (Brazil); Stanford University; University of California at San Diego; University of North Carolina at Chapel Hill; University of São Paulo (Brazil); University of Texas Southwestern at Austin; and University of Texas Medical Branch at Galveston.

From a technological standpoint, there were no major difficulties in terms of equipment, participant access, chat functionality, or any other software issues.

The survey was kept brief to gauge the perceived effectiveness of this approach as a teaching methodology, and to incentivize participation. Only 6 responses were submitted, thereby limiting analysis. Qualitatively, the format was rated as being very effective. There were no major concerns raised.

Discussion

The goal of this pilot was to demonstrate the feasibility of integrating SPOC technology with flipped classroom techniques to improve the dissemination of neuroscientific educational resources in psychiatry. We are pleased that this pilot session succeeded both technologically and in engaging a geographically diverse audience. The format and technology provided open access to experts and utilized an experiential and interactive learning opportunity.

One obvious limitation of the current report is the poor response rate to the survey and our own uncertainty regarding the number and location of participants. Though our survey sample size was limited, the feedback that was collected from the participants was positive. We would note that our objective was to create an educational experience rather than to conduct an experiment, per se. In future iterations, we plan to ask that participants follow a specific screen name format so as to optimize tracking and assessment.

To the best of our knowledge, only one site formally incorporated this exercise into their curriculum. This may relate to short notice: we began advertising the event 1–2 months in advance though residency curricula are often planned out for the entire year at a time. We also received feedback that the specific date and time was an issue: additional sites would have been interested in participating had the session not overlapped with other standing educational commitments (a problem compounded by time zone differences). To overcome these obstacles, one might need to plan and advertise for these conferences before the start of the academic year.

We also received feedback that the experience might have felt passive for some participants. As with any flipped classroom approach, we would emphasize the importance of advanced preparation—participants will learn the most if they formulate the case on their own and then have the chance to compare their work to the experts. To enhance engagement with future conferences, we would strongly encourage programs to have a local discussion prior to the conference, engage in peer supervision, and frame questions that they would like to ask experts to address. Another alternative might be to use the SPOC session as a faculty development exercise: teaching faculty could participate in order to improve their knowledge and comfort with the material so that they might later serve as experts during a local “live” version of a similar event.

Another major question is how well this format would work with an even larger group. While the software platform is able to accommodate a large number of individuals, the dynamics of the discussion and the ability of participants to engage directly with faculty would be altered. One way to navigate the transition from a small to a larger group is to have

a designated teaching assistant play a more active role in moderating and cultivating online discussion (including both soliciting questions from and posing content-based assessment questions to the group). A benefit of this approach is that it helps make the conference a more active learning environment.

As we move forward, we will continue to work to optimize the format. One potential future direction is to include discussants from multiple sites simultaneously, allowing us to draw from a larger pool of experts and to enhance the process of collaboration between stakeholders. We believe such a conference is easily feasible with our current setup (though it would entail each site configuring a basic web camera at a minimum). While we spent a considerable amount of time and energy preparing for this first event, having worked out the technical details, we believe we could set up and run in approximately 30 min.

By exploiting new technology, SPOCs are a feasible model for fostering educational collaborations between geographically distant participants. Our current pilot supports the contention that the SPOC is an effective means of conducting case conferences and connecting neuroscientists with psychiatry trainees. Moreover, as programs strain to meet an ever increasing number of ACGME and milestone requirements, this approach could be valuable for addressing a wide range of topics across residency training.

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Implications for Educators

- The potential value of flipped classroom sessions and other experiential learning exercises is receiving increasing recognition, and online learning approaches are instrumental to these new paradigms.
- Small, private online courses (SPOCs) represent an untapped resource and potentially valuable approach for allowing residency programs to share resources across diverse sites.
- Online learning approaches may be particularly important for topics like neuroscience, for which faculty expertise may be scarce.

Fig. 1.

Timeline illustrating the planning and execution of the small private online course starting 4 weeks prior to the event and including the day of the event