Check for updates

PRACTICAL TIPS

REVISED **Practical tips for a fast and successful transition to an online curriculum** [version 2; peer review: 2 approved, 2 approved with reservations]

Chloé E.C. Bras 📵[1], Remco C. Jongkind[1], Ellen L. van Veen[1], Kim Win Pang 📵[1], Laura E. Olthof[1], Tobias B.B. Boerboom[2]

[1]Teaching & Learning Centre, Amstersdam University Medical Centres, Amstersdam, North Holland, The Netherlands
[2]Faculty of Veterinary Medicine, Utrecht University, Utrecht, Utrecht, The Netherlands

Abstract

The COVID-19 pandemic and the following lockdown forced educational institutions to transform their face-to-face curriculum into an online programme in a matter of weeks. In this article, we present 12 tips for a successful transition based on the challenges that we faced in the Bachelor of Medicine at Amsterdam Medical Centre. These tips are divided in four main themes: infrastructure, faculty development, student engagement, and teaching activities. The Community of Inquiry model is used as backbone in all tips, since the three elements, teaching presence, social presence, and cognitive presence are essential factors in effective online education. These tips can be useful for everyone who wants to implement online education in their curriculum, whether borne out of necessity or by design.

Keywords

online education, community of inquiry model, curriculum transition

This article is included in the Current Challenges and Developments in Health Professions Education collection.

Open Peer Review

Approval Status ✔ ? ✔ ?

	1	2	3	4
version 2 (revision) 11 Jul 2024	✔ view		✔ view	? view
version 1 11 Oct 2023	? view	? view		

1. **Anita Samuel** 📵, Uniformed Services University of Health Sciences, Bethesda, USA

2. **Assaf Marom**, Technion Israel Institute of Technology, Haifa, Israel

3. **Ahmed Msherghi**, University of Tripoli, Tripoli, Libya
The University of Texas MD Anderson Cancer Center, Houston, USA

4. **William S Brooks** 📵, The University of Alabama at Birmingham, Birmingham, USA

Any reports and responses or comments on the article can be found at the end of the article.

Corresponding author: Chloé E.C. Bras (c.bras@amsterdamumc.nl)

Author roles: Bras CEC: Conceptualization, Investigation, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; **Jongkind RC**: Conceptualization, Investigation, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; **van Veen EL**: Investigation, Writing – Original Draft Preparation; **Pang KW**: Investigation, Writing – Original Draft Preparation; **Olthof LE**: Investigation, Writing – Original Draft Preparation; **Boerboom TBB**: Conceptualization, Investigation, Methodology, Project Administration, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing

Introduction

In early 2020 the COVID-19 pandemic turned the world upside down. Suddenly, education could no longer take place face-to-face and entire programmes turned into online curricula in a matter of weeks. On the level of students, lecturers and content, challenges arose in knowledge and skills (Kebritchi et al., 2017). However, with technology evolving fast, online or hybrid education has the potential to be effective, easily accessible and sustainable (Protopsaltis & Baum, 2019). The educational institute plays a major role in facilitation of the transition to online education, however they need to know what challenges they are facing and what possible solutions there are for effective online programmes (Kebritchi et al., 2017).

Simply converting traditional courses into an online version neglects the complexity of education. A more broad framework for effective online educational programmes is described by Richardson et al. (2012) in the Community of Inquiry (CoI) model. This framework is based on the framework of Garrison et al. (1999). They state that the quality of online education depends on the relation between three key aspects: social presence, teaching presence, and cognitive presence. Social presence is described as the student-student interaction, and the extent in which they feel safe and involved in the online environment. It comprises of affective expression, open communication, and group cohesion. Teaching presence refers to the factors of effective online education that can be influenced by lecturers and the educational institute. Three key components of teaching presence are instructional design and organization, facilitating discourse, and direct instruction. Cognitive presence is the students learning process, which consists of four phases, i.e. triggering, exploration, integration, and resolution (Richardson et al., 2012). A triggering event leads to exploration of the possibilities. Due to the exploration, new insight can be integrated in already acquired knowledge and skills, which can eventually lead to resolution.

In the current article, the Community of Inquiry model (see Figure 1) is used as a framework to provide guidance in developing effective online programmes. We present 12 tips to digitalise a curriculum, in which continuity and quality are
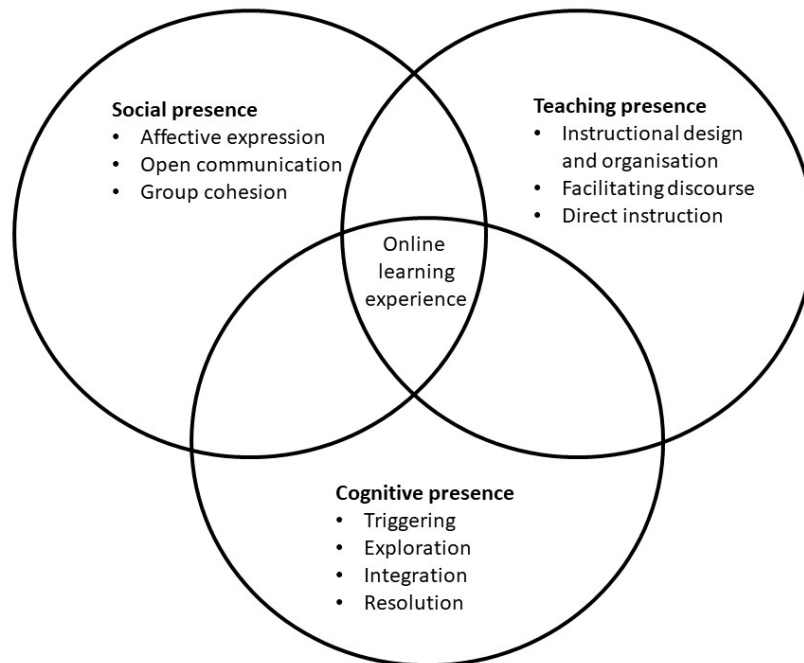
Figure 1. Community of Inquiry Framework for online learning experience. The Community of Inquiry model described by (Richardson et al., 2012) states that the quality of online education depends on the relation between three key aspects: social presence, teaching presence and cognitive presence. Social presence is described as the student-student interaction, and the extent in which they feel safe and involved in the online environment. Teaching presence refers to the factors of effective online education that can be influenced by lecturers and the educational institute. Cognitive presence is the students learning process. This figure has been reproduced from the Community of Inquiry website with permission from Richardson et al. (2012). It is adapted from learning experience to online learning experience, and the three elements are further elaborated upon.

maintained. These tips are divided in four main themes, i.e., infrastructure, faculty development, student engagement, and teaching activities. It is based on our experiences in the Bachelor of Medicine at Amsterdam University Medical Centres (UMC), location Amsterdam Medical Centre (AMC) and supported with literature.

Tip 1: Faculty development - Stimulate collaboration and communication in the core educational team

When transitioning to an online curriculum it is important to facilitate and unite your faculty for optimal teaching presence: get together with a core educational team of people who teach the most in regular meetings and create short lines of communication between management, ICT (information and communications theory), lecturers and support staff to choose the approach and tools to digitize the programme (Kirk & MacDonald, 2001; Miyagawa & Perdue, 2020). During COVID-19 the transitioning had to be very fast and everyone was on a tight schedule. To keep eachother updated, we started every monday with a meeting which led to cooperation instead of everyone working independently. To keep all lecturers, also outside of the core educational team, up to date on the latest policies, developments and possibilities, weekly mailings were sent or live question sessions were arranged.

Furthermore, to streamline communication ideally pick one person in your core team as a representative within and outside the faculty to allow short lines of communication. This enhances the sharing of best practices, policies, and developments within the faculty and other faculties of the university.

Tip 2: Infrastructure - Ensure a solid basis of streaming and interaction software and (limit) digital tools

Streaming lectures is a key component of an online curriculum with many benefits if used correctly and under the right conditions (Mosley, 2017; Wirihana et al., 2017). One must assure that both the hardware and software infrastructure are well arranged to ensure good teaching presence (Chow & Croxton, 2017).

Regarding the hardware it is important that there are locations with live streaming equipment, such as stable internet connection, good microphone, and camera. These should be accompanied by technical support and a moderator to control the chat and interactive functions such as breakout rooms (Bordes et al., 2021; Norman, 2017). Planning of time and location of the lectures in the streaming room should be communicated well to lecturers, moderators and students via a centralized schedule. In our institution, we set-up three main rooms with good microphones, a camera and stable internet connection from where we could broadcast live lectures. We hired student assistants, who were trained in moderating the online lectures and helped the lecturers with monitoring the chat and sharing the slides. Furthermore, there was someone responsible for technical support who could be called on in case of problems.

Regarding the software it is important to use a limited number of digital tools to ensure maximal proficiency of the students and lecturers and to make it possible for the ICT department to provide the necessary support (Margaryan et al., 2011). The absolute minimum that is required is a live streaming tool with options for breakout rooms such as Zoom, Webex, or Teams and ideally one would also have access to an interaction tool such as Mentimeter, Kahoot, or Miro.

Tip 3: Infrastructure - Guarantee access and proficiency in the use of assessment tools

A house cannot be built without strong foundations: access to hardware and software for lecturers and students needs to be guaranteed. Hence, contact points need to be created where students or lecturers can either borrow laptops or provide spaces to participate in digital learning and testing (Khalid & Pedersen, 2016).

Furthermore, training sessions should be organised for lecturers and students in order to optimize the continuity and reliability of teaching activities and teaching presence. Since assessment of students is a high-stake element in education, accessibility and functionality of the exam platform is imperative before an examination moment (Elsalem et al., 2020). We organised a test examination in advance to check the accessibility and functionality and in case of difficulties alternative options were offered.

Tip 4: Faculty development - Implement formal faculty development initiatives

In a considerable number of medical schools, faculty and lecturers have little experience with conducting their courses entirely online (Lewis & Baker, 2010). Online teaching requires faculty to adapt their usual teaching materials and methods to facilitate learning and encourage interaction (Lockyer et al., 2006). As stated in the introduction section, lecturers should consider social presence, teaching presence, and cognitive presence when they teach online. This requires new skills and therefore creates an urgent need for faculty development on this matter (Albrahim, 2020; Zuo & Miller Juvé, 2021). However, due to COVID-19, organizing faculty development meetings was challenging. On the one hand face-to-face gatherings of staff were restricted in many cases and on the other hand a lot of medical teaching staff faced overwhelming demands of their clinical task.

As a form of individual formal faculty development, we provided lecturers with short one-topic videos and e-learning assignments on online teaching. These videos and assignments covered both online didactics and practical instructions on how to choose and use the selected online teaching tools. Educational redesign aids for online teaching were distributed through mailings and an newly created website. In addition to these forms of individual formal faculty development we organized several online instruction and question and answer (Q&A) sessions for groups of lecturers. Lecturers were also

invited for seminars on online Team Based Learning and interaction in online webinars.

Tip 5: Faculty development - Facilitate informal faculty development initiatives

Besides the abovementioned formal faculty development activities, institutes are also advised to implement several informal initiatives in the workplace to aid lecturers in their transition to online teaching (Baker, 2020; Steinert *et al.*, 2010). Working alongside more experienced colleagues, and having the opportunity to consult them for feedback and mentoring greatly enhances learning in the workplace (Eraut, 2007). As stated before, a lot of our medical teaching staff faced overwhelming demands in their clinical tasks, so they didn't had time to professionalize in online teaching. Therefore, as a form of individual informal faculty development we paired our dedicated lecturers (Medical Educators) with significant skills and knowledge concerning online teaching, with colleagues with less experience in online teaching. By pairing Medical Educators with medical content experts, the organization and implementation of online education is enhanced and progressed more rapidly, leading to better teaching presence.

To enhance interaction between these two groups of lecturers, the Medical Educators took the role of moderators in the majority of online seminars, Team Based Learning sessions and tutorials. This created lots of opportunities for role modelling, consulting and feedback in the online workplace. In a later phase, student assistants who were trained by the Medical Educators also became supporting moderators.

To further enhance informal faculty development in online teaching, we organized weekly online teaching meetings where lecturers could exchange experiences with their online courses and where they could ask for peer support.

Tip 6: Student engagement - Avail yourself of student feedback

Student feedback regarding online education provides critical knowledge and understanding for lecturers. Students' perspective on educational design and organisation, can contribute to better teaching presence. Moreover, it can lead to improved student engagement in educational activities once they recognize the importance of feedback (Brody & Santos, 2019; Whittle *et al.*, 2020).

We used two types of student feedback in our digital curriculum: focus groups and regular online questionnaires. By setting up a student focus group, we made sure that educational goals and expectations of students were aligned. Regular meetings with this group gave students the opportunity to make their voices heard. Furthermore, after lectures a digital evaluation form was sent by using a QR-code. Fast repeating evaluation moments made it possible to immediately implement the feedback about online education in our curriculum. We advise to focus on student feedback mostly at the start of the course or when using different types of educational formats,

since the risk of 'evaluation tiredness' lies ahead when students are asked for feedback during every class or lecture (Adams & Umbach, 2012).

Tip 7: Student engagement - Pay attention to students' mental support

From the abovementioned student panel, we also received signals about sense of isolation and mental burden during the period of online education. Also tutors shared their concerns about the mental wellbeing of their students based on their online individual meetings with students. The impact of quarantine during the COVID-19 pandemic has led to medical students feeling emotionally detached from family, peers and friends leading to a decrease in overall work and study performance (Meo *et al.*, 2020). Since mental burden has an impact on students' study behaviour, we put extra emphasis on (continuing) the tutoring and coaching online. Tutors were instructed to pay special attention to the student's mental health and stimulate community feeling in class to improve their social presence.

Furthermore, students receive an overwhelming amount of information during the transition from on-campus education to full online education. To provide an overview we set-up a central page on the learning platform for communication of all changes during the COVID-period. One of the items on the central page on the learning platform was highlighting the route for mental care. The attention for students' mental support is necessary for open communication to improve the social presence.

Tip 8: Student engagement - Stimulate peer support to prevent isolation

Social presence is an important aspect to promote study success (Richardson *et al.*, 2012). Lack of social interaction can lead to student isolation, therefore it is important to stimulate peer support during the course (AlJhani *et al.*, 2022; Croft *et al.*, 2010). However, in an online environment it can be challenging to create social interaction and group cohesion without face-to-face contact. Due to COVID-19 students didn't have a lot of social interaction and as stated in Tip 7 did we receive signals about sense of isolation and mental burden. Therefore, we stimulated peer support inside and outside the classroom to prevent isolation and indirectly promote study success in an online curriculum.

In our online sessions we used active teaching methods in which students worked together in small groups. For example, an assignment was explained to all students in the main room and then everyone went to their breakout room to discuss and formulate answers. After a given period of time, all students came back to the main room to discuss answers led by a teacher. In synchronous teaching activities it is also possible to let advanced medical students serve as teaching assistants. These advanced medical students can help other students to understand the teaching material based on their own experience as a student (Mesner Fireizen *et al.*, 2023).

To stimulate social interaction besides the online sessions, asynchronous small group-assignments can be implemented in the curriculum (Bickle & Rucker, 2018). We developed assignments in which students had to work together on a paper and in which they had to provide peer feedback on a presentation as a formative assessment.

Encouraging student initiatives is another way to create a student community in which students can interact and learn with peers (Richardson *et al.*, 2012). An example of such a student-lecturer initiative is an organized (online) pub quiz with questions about the study material prior to the exam.

In short, peer support can be stimulated by lecturers inside and outside classroom activities as well as by student initiatives.

Tip 9: Teaching activities - Create a safe and supportive online learning environment

Building an online learning community in which students feel safe and supported is crucial to facilitate learning (Sun & Chen, 2016). Moreover, a sense of belonging, open communication and expression of emotion can prevent students from dropping out (DiRamio & Wolverton, 2006; Garrison *et al.*, 1999). In our online teaching sessions, the teacher was continuously visible to make the lecture more personal. Students were welcomed at the start, and during the session the teacher used first names to make students feel part of the community.

Since team-based learning is a key element in our curriculum, small-scale education takes place in fixed groups of twelve students, which ensures strong social presence. A disadvantage of these fixed groups in online education is logistics like grouping students in the right online session and a fluctuating attendance. Alternating groups results in less logistic difficulties and stimulates students to collaborate with various fellow students. However, it reduces the social presence. In our experience, fixed groups are important in the first year to provide structure and a safe and supportive learning environment. Whereas third year students adapted faster to a new group.

Besides social presence, teaching presence is an important factor to create a supportive learning environment (Yuan & Kim, 2014). Especially in online education, lecturers are not only content experts, but they are also facilitators of interaction (Richardson *et al.*, 2012). When we started with online education a lot of students turned off the camera and some changed their name in a stripe, so their names could not be mentioned. To ensure a safe learning environment, we made a code of conduct which was implemented in all online sessions. As a result, more students turned their camera on and all students could be mentioned by their name. When there is more time to create an online learning environment, it is recommended to write the code of conduct together with the students, so they take ownership and responsibility for the codes (Coleman, 2012).

Tip 10: Teaching activities - facilitate interaction, dialogue and student participation

We consider interaction to be one of the key components in the design of our curriculum. By triggering students and facilitate their exploration process, cognitive presence is stimulated (Richardson *et al.*, 2012). Students value to be in constant dialogue with their lecturers (Boelens *et al.*, 2017), and student-teacher interaction as well as peer interaction is important for social and teaching presence, leading to effective learning (Delgaty, 2018). In an online learning environment, it can be challenging to facilitate sufficient interaction with fellow students and lecturers (Croft *et al.*, 2010). During the online lectures we saw students sitting at home and get easily distracted, so we intended to maintain interaction in the design of our online curriculum in the following ways;

We communicated dates and times of all live online sessions at the beginning of each course and at the start of every week. During live classes, in small or larger groups, we frequently built-in moments for questions. With large student groups, the chat or Q&A function of the video conferencing platform could be used by students to meet this purpose. Ideally, the chat was managed by a second teacher/moderator. In live sessions with larger groups of students, interactive voting tools (e.g., polls in Zoom and Mentimeter) proved to be useful in creating interaction. Results of the voting tool could serve as a base for plenary discussion, and student engagement could be encouraged by asking them to motivate their choices.

Peer interaction was be facilitated by creating small online subgroups (breakout rooms). We gave students a specific and comprehensible assignment to carry out in a group and provided feedback afterwards in the main session. Furthermore, weekly online (live) Q&A sessions were scheduled. Students were asked to hand in questions beforehand, so lecturers could provide additional explanation where needed. We observed better attendance to these online gatherings, as opposed to face-to-face question hours.

Ultimately, we would like to emphasize lecturer's availability outside of live moments. Asynchronous discussion boards could be a useful medium for peers to collaborate, provided that lecturers take an active role in supervising the discussions and providing guidance.

Tip 11: Teaching activities - Be creative and variate in teaching methods

Because students all have a preferred learning strategy, variation in teaching methods is just as important as interaction to increase motivation and the effectiveness of student learning (Zayapragassarazan, 2020). The way an educator presents information may stimulate and facilitate one student's learning but could impede the learning process of another student. We enhanced the cognitive presence by creating variation in teaching and learning activities in our programme to

trigger students in different ways and to align with as many learning strategies as possible (Richardson *et al.*, 2012).

Many different teaching methods are suitable to create this variation, even in a digital or hybrid curriculum. For example, we used breakout rooms, to make them work together in small groups on a project, such as creating a differential diagnosis or assessing an electrocardiogram. Afterwards, we discussed the results in a main session together and gave the students feedback. Furthermore, we used gamification (Boelens *et al.*, 2017) to walk them through taking a patient history, by simultaneously playing an online game together with students, using share screen options.

In our experience, a lot of teaching activities can be digitalized by creatively using existing content and educational formats. Some classes, like radiology and microbiology, turned out to be very suitable for online education and are even better received in a digital environment. During the class students indicated that they were able to see all radiology images in high quality with the good light and that they would like to receive these tutorials in a digital environment from now on.

Admittedly, not every teaching activity can be digitalized. Practicing specific practical skills is not possible to digitalize, however anatomy tutorials with a video or photo images from specific structures proved to be useful in the explanation. Students have a better view on the heart when watching an anatomy tutorial than when gathering around a table to see which small structure the lecturer pointed out. So in that case, online education can be a valuable addition to face-to-face education (Bordes *et al.*, 2021).

Tip 12: Teaching activities - Take cognitive load into account when scheduling online sessions

Laptops and mobile phones are known distracters during class, which can lead to cognitive overload (Attia *et al.*, 2017). Moreover, we experienced that it is more difficult to sense students' energy level in the online sessions. Therefore, the design and organization aspect of teaching presence plays an important role to prevent from cognitive overload. Cognitive load should be taken into account when scheduling online sessions and planning the student activities.

A balance between synchronous learning activities and self-study needs to be found during online courses. Our student evaluations showed that at least two or three online live sessions per week are desired for interaction. We set a maximum of two hours per online live session with a break halfway of at least fifteen minutes. The attention span of students is approximately 10–15 minutes (Pearl & Arunfred, 2019), so it is important to divide a session in short parts of various teaching activities. Alternating explanation with interaction can extend students attention span (Geri *et al.*, 2017).

Besides live lectures or tutorials, we developed short educational videos (max 15 minutes) which covered one specific topic. Teaching presence encourages cognitive presence (Hosler & Arend, 2012), so by using these short educational videos students have more autonomy in scheduling their learning activities.

Conclusion

The change from a face-to-face curriculum to a nearly complete online curriculum in early 2020 was born out of necessity. However, over the past year we have also learned that there can definitely be positive aspects to online education in certain situations.

Therefore, in this article we have outlined 12 tips to help others that want to transform their face-to-face education to an (partially) online format in the future. These tips range from how to set-up your infrastructure and faculty development to engaging students and advice for online educational activities.

Data availability

No data are associated with this article.

References

Adams MJD, Umbach PD: **Nonresponse and online student evaluations of teaching: understanding the influence of salience, fatigue, and academic environments.** *Res High Educ.* 2012; **53**(5): 576–591.
Publisher Full Text

Albrahim FA: **Online teaching skills and competencies.** *Turkish Online Journal of Educational Technology-TOJET.* 2020; **19**(1): 9–20.
Reference Source

AlJhani S, Alateeq D, Alwabili A, *et al.*: **Mental health and online learning among medical students during the COVID-19 pandemic: a Saudi national study.** *J Ment Health Train Educ Pract.* 2022; **17**(4): 323–334.
Publisher Full Text

Attia NA, Baig L, Marzouk YI, *et al.*: **The potential effect of technology and distractions on undergraduate students' concentration.** *Pak J Med Sci.* 2017; **33**(4): 860–865.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Baker VL: **How Colleges Can Better Help Faculty During the Pandemic.** 2020;
Retrieved 28-05-2024.
Reference Source

Bickle MC, Rucker R: **Student-to-student interaction: humanizing the online classroom using technology and group assignments.** *Q Rev Distance Educ.* 2018; **19**(1): 1–56.
Reference Source

Boelens R, De Wever B, Voet M: **Four key challenges to the design of blended learning: a systematic literature review.** *Educ Res Rev.* 2017; **22**: 1–18.
Publisher Full Text

Bordes SJ, Walker D, Modica LJ, *et al.*: **Towards the optimal use of video recordings to support the flipped classroom in medical school basic sciences education.** *Med Educ Online.* 2021; **26**(1): 1841406.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Brody HI, Santos JM: **Helping students engage with written feedback.** *Journal of Instructional Research.* 2019; **8**(2): 110–112.
Reference Source

Chow AS, Croxton RA: **Designing a responsive e-learning infrastructure: systemic change in higher education.** *Am J Distance Educ.* 2017; **31**(1): 20–42.
Publisher Full Text

Coleman PD: **Ethics, online learning and stakeholder responsibility for a code of conduct in higher education.** *Kentucky Journal of Excellence in College Teaching and Learning.* 2012; **9**(1): 3.
Reference Source

Croft N, Dalton A, Grant M: **Overcoming isolation in distance learning: building a learning community through time and space.** *Journal for Education in the Built Environment.* 2010; **5**(1): 27–64.
Publisher Full Text

Delgaty L: **Transactional distance theory: a critical view of the theoretical and pedagogical underpinnings of e-learning.** *Interactive Multimedia-Multimedia Production and Digital Storytelling.* IntechOpen, 2018.
Publisher Full Text

DiRamio D, Wolverton M: **Integrating learning communities and distance education: possibility or pipedream?** *Innov High Educ.* 2006; **31**(2): 99–113.
Publisher Full Text

Elsalem L, Al-Azzam N, Jum'ah AA, *et al.*: **Stress and behavioral changes with remote E-exams during the COVID-19 pandemic: a cross-sectional study among undergraduates of medical sciences.** *Ann Med Surg (Lond).* 2020; **60**: 271–279.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Eraut M: **Learning from other people in the workplace.** *Oxf Rev Educ.* 2007; **33**(4): 403–422.
Publisher Full Text

Garrison DR, Anderson T, Archer W: **Critical inquiry in a text-based environment: computer conferencing in higher education.** *Internet High Educ.* 1999; **2**(2–3): 87–105.
Publisher Full Text

Geri N, Winer A, Zaks B: **A learning analytics approach for evaluating the impact of interactivity in online video lectures on the attention span of students.** *Interdisciplinary Journal of E-Learning and Learning Objects.* 2017; **13**(1): 215–228.
Publisher Full Text

Hosler KA, Arend BD: **The importance of course design, feedback, and facilitation: student perceptions of the relationship between teaching presence and cognitive presence.** *Educ Media Int.* 2012; **49**(3): 217–229.
Publisher Full Text

Kebritchi M, Lipschuetz A, Santiague L: **Issues and challenges for teaching successful online courses in higher education: a literature Review.** *Journal of Educational Technology Systems.* 2017; **46**(1): 4–29.
Publisher Full Text

Khalid MS, Pedersen MJL: **Digital exclusion in higher education contexts: a systematic literature review.** *Procedia Soc Behav Sci.* 2016; **228**: 614–621.
Publisher Full Text

Kirk D, MacDonald D: **Teacher voice and ownership of curriculum change.** *J Curriculum Stud.* 2001; **33**(5): 551–567.
Publisher Full Text

Lewis KO, Baker RC: **Teaching medical professionals online: a cross-discipline experience.** *Med Teach.* 2010; **32**(3): 262–264.
PubMed Abstract | **Publisher Full Text**

Lockyer J, Sargeant J, Curran V, *et al.*: **The transition from face-to-face to online CME facilitation.** *Med Teach.* 2006; **28**(7): 625–630.
PubMed Abstract | **Publisher Full Text**

Margaryan A, Littlejohn A, Vojt G: **Are digital natives a myth or reality? University students' use of digital technologies.** *Comput Educ.* 2011; **56**(2): 429–440.
Publisher Full Text

Meo SA, Abukhalaf AA, Alomar AA, *et al.*: **COVID-19 pandemic: impact of quarantine on medical students' mental wellbeing and learning behaviors.** *Pak J Med Sci.* 2020; **36**(COVID19-S4): S43–S48.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Mesner Fireizen S, Finkelstein A, Tsybulsky D, *et al.*: **Israeli medical faculties' response to the COVID-19 crisis vis-à-vis anatomical education: the cultivation of future academic leadership—a national mixed-methods study.** *Anat Sci Educ.* 2023; **16**(6): 1158–1173.
PubMed Abstract | **Publisher Full Text**

Miyagawa S, Perdue M: **A renewed focus on the practice of teaching.** 2020; Retrieved 28-05-2024.
Reference Source

Mosley PL: **Lecture video: characteristics and utilizations as an online learning resource.** *Online Approaches to Chemical Education.* ACS Publications; 2017; 91–100.
Publisher Full Text

Norman MK: **Twelve tips for reducing production time and increasing long-term usability of instructional video.** *Med Teach.* 2017; **39**(8): 808–812.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Pearl JB, Arunfred N: **A comparative study on the concentration skill between E-Learning methods and traditional learning methods among higher education students.** *Asia Pacific Journal of Multidisciplinary Research.* 2019; **7**(4).
Reference Source

Protopsaltis S, Baum S: **Does online education live up to its promise? A look at the evidence and implications for federal policy.** Center for Educational Policy Evaluation, 2019.
Reference Source

Richardson JC, Arbaugh JB, Cleveland-Innes M, *et al.*: **Using the community of inquiry framework to inform effective instructional design.** *The Next Generation of Distance Education.* Springer; 2012; 97–125.
Publisher Full Text

Steinert Y, Macdonald ME, Boillat M, *et al.*: **Faculty development: if you build it, they will come.** *Med Educ.* 2010; **44**(9): 900–907.
PubMed Abstract | **Publisher Full Text**

Sun A, Chen X: **Online education and its effective practice: a research review.** *J Inf Technol Educ.* 2016; **15**: 157–190.
Publisher Full Text

Whittle C, Tiwari S, Yan S, *et al.*: **Emergency remote teaching environment: a conceptual framework for responsive online teaching in crises.** *Information and Learning Sciences.* 2020; **121**(5/6): 311–319.
Publisher Full Text

Wirihana L, Craft J, Christensen M, *et al.*: **A nursing education perspective on the integration of video learning: a review of the literature.** *Singapore Nursing Journal.* 2017; **44**(1).
Reference Source

Yuan J, Kim C: **Guidelines for facilitating the development of learning communities in online courses.** *J Comput Assist Learn.* 2014; **30**(3): 220–232.
Publisher Full Text

Zayapragassarazan Z: **COVID-19: Strategies for engaging remote learners in medical education.** *F1000Res.* Online Submission, 2020; **9**(273): 1–18.
Publisher Full Text

Zuo L, Miller Juvé A: **Transitioning to a new era: future directions for staff development during COVID-19.** *Med Educ.* 2021; **55**(1): 104–107.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Open Peer Review

Current Peer Review Status: ✔ ? ✔ ?

- -

Version 2

Reviewer Report 23 August 2024

https://doi.org/10.21956/mep.21978.r38293

? **William S Brooks** (iD)

The University of Alabama at Birmingham, Birmingham, Alabama, USA

This article provides helpful tips to the medical educator intent on converting curricular elements to a fully online format. The following are observations and suggestions to improve the manuscript.

- The introduction provides Community of Inquiry as a framework for the 12 tips, but it was not inherently clear how CoI influenced each of the 12 tips. More explicit links between each tip and CoI would be helpful.

- How were the themes (faculty development, student engagement, infrastructure) decided upon and how do they relate to Figure 1?

- Tip 1 - overlap with tips 4 and 5. Tip 1 felt more general and less practical.

- Tip 3 - needs to focus more on remote assessment. How to ensure exam integrity, academic integrity, proctoring logistics, synchronous vs. asynchronous testing, etc.

- Tips 7 and 8 had too much overlap regarding student mental health. Consider focusing one tip on ensuring student mental health and another tip on building peer camaraderie

Is the topic of the practical tips discussed accurately in the context of the current literature

Yes

Are all factual statements correct and adequately supported by citations?

Yes

Are arguments sufficiently supported by evidence from the published literature and/or the authors' practice?

Yes

If evidence from practice is presented, are all the underlying source data available to ensure full reproducibility?

Yes

Are the conclusions drawn balanced and justified on the basis of the presented arguments?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Anatomy education, disability education, pedagogy

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 09 August 2024

https://doi.org/10.21956/mep.21978.r38032

✔️ **Ahmed Msherghi**
[1] University of Tripoli, Tripoli, Tripoli District, Libya
[2] The University of Texas MD Anderson Cancer Center, Houston, Texas, USA

This study presents an integrative plan designed to effectively implement online learning within educational institutions and schools. The proposed framework is commendable, as it highlights the importance of a structured approach to online education.

However, upon reviewing the study, I found myself eager for more detailed insights into this plan's practical applications. Specifically, I was looking for comprehensive tools and strategies that would empower educators to conduct remote sessions seamlessly from home. While the concept of online learning is increasingly relevant, the lack of concrete resources to facilitate effective delivery can hinder its successful adoption.

Did you develop a specific strategy for addressing these challenges based on what you face in your institution?

Additionally, based on existing literature, what practical inferences can you draw regarding educators' remote session provision? These insights would greatly enhance the comprehensiveness of your plan and provide much-needed guidance to teachers navigating the complexities of online instruction.

A deeper exploration of tools, technologies, and pedagogical approaches suited to remote

teaching could significantly enrich your study and equip educators with actionable solutions to foster effective online learning environments.

Is the topic of the practical tips discussed accurately in the context of the current literature

Yes

Are all factual statements correct and adequately supported by citations?

Yes

Are arguments sufficiently supported by evidence from the published literature and/or the authors' practice?

Yes

If evidence from practice is presented, are all the underlying source data available to ensure full reproducibility?

Partly

Are the conclusions drawn balanced and justified on the basis of the presented arguments?

Yes

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 07 August 2024

https://doi.org/10.21956/mep.21978.r37913

✔️ **Anita Samuel** 🆔

Center for Health Professions Education, School of Medicine, Uniformed Services University of Health Sciences, Bethesda, MD, USA

Thank you for addressing the comments I raised earlier.

My only lingering concern is how COI figure in this. You note that you have added this information to each tip but I'm not able to see it.

Is the topic of the practical tips discussed accurately in the context of the current literature

Yes

Are all factual statements correct and adequately supported by citations?

Yes

Are arguments sufficiently supported by evidence from the published literature and/or the authors' practice?

Yes

If evidence from practice is presented, are all the underlying source data available to ensure full reproducibility?

Yes

Are the conclusions drawn balanced and justified on the basis of the presented arguments?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Online education, adult education, educational technology, faculty development

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

Reviewer Report 23 November 2023

https://doi.org/10.21956/mep.21165.r35037

?

Assaf Marom
Technion Israel Institute of Technology, Haifa, Haifa District, Israel

In this perspective the authors describe how to effectively transform traditional education into an online curriculum. According to the introduction, the authors base their insight on their own experience and formulate it in the form of 12 recommendations, based on the CoI model (Richardson et al., 2012). These recommendations could be very helpful for cases in which an online curriculum is required.

Major comments
1. Reading about the authors' personal experiences that led to each of the recommendations would provide valuable insight. What obstacles did you encounter in each category that informed the advice you are providing? For instance, in Tip 5, could you elaborate on the specific events and discussions among the pedagogic team that led to the conclusion that

pairing colleagues would be beneficial?

2. Similarly, could you provide insights into how the implementation of these recommendations within your institute improved the transition to an online curriculum? For instance, in Tip 7, how did you collect information from your students on mental burden?

3. There is a substantial body of literature that has emerged post-Covid-19, analyzing academic institutions' experiences in dealing with the challenges posed by the crisis. It would be valuable to incorporate discussions of how these recommendations align with or have evolved in response to the insights provided by the post-Covid-19 literature.

Minor comments

1. I think that a succinct explanation of what the CoI means is required in the abstract. Alternatively, the authors can rephrase the sentence about CoI in the abstract to make clear that what they list are three components of the model, i.e., teaching presence, social presence, and cognitive presence.

2. ICT (see Tips 1 and 2) should be defined the first time it is used.

3. The authors' recommendation regarding the stimulation of peer support (Tip 8, paragraph on "stimulating student initiatives") matches our experience during the Covid-19 crisis. In particular, our experience in teaching anatomy during the crisis demonstrates that initiatives from students who act as dissection instructors played a key role in coping with the challenges of the transition to online teaching (Mesner Fireizen et al., 2023).

Refs.

Mesner Fireizen S, Finkelstein A, Tsybulsky D, Yakov G, and Marom A. 2023. Israeli medical faculties' response to the Covid-19 crisis vis-a-vis anatomical education: The cultivation of future academic leadership-A national mixed-methods study. Anatomical Sciences Education 00:1-16.

References

1. Mesner Fireizen S, Finkelstein A, Tsybulsky D, Yakov G, et al.: Israeli medical faculties' response to the COVID-19 crisis vis-à-vis anatomical education: The cultivation of future academic leadership-A national mixed-methods study.*Anat Sci Educ*. 2023; **16** (6): 1158-1173 PubMed Abstract | Publisher Full Text

Is the topic of the practical tips discussed accurately in the context of the current literature

Partly

Are all factual statements correct and adequately supported by citations?

Yes

Are arguments sufficiently supported by evidence from the published literature and/or the authors' practice?

Partly

If evidence from practice is presented, are all the underlying source data available to ensure full reproducibility?

Not applicable

Are the conclusions drawn balanced and justified on the basis of the presented arguments?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: anatomy, human evolution

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 03 Jul 2024
Chloé Bras

Dear Assaf Marom, Thank you for reading and for your feedback. We have made changes to the paper and its uploaded as Version 2. We believe that version to is much better thanks to your review and feedback. Below we indicate point by point how we have adjusted it in version 2:

Reading about the authors' personal experiences that led to each of the recommendations would provide valuable insight. What obstacles did you encounter in each category that informed the advice you are providing? For instance, in Tip 5, could you elaborate on the specific events and discussions among the pedagogic team that led to the conclusion that pairing colleagues would be beneficial?
  ○ We added some of our experiences and recommendations in all tips.

Similarly, could you provide insights into how the implementation of these recommendations within your institute improved the transition to an online curriculum? For instance, in Tip 7, how did you collect information from your students on mental burden?
  ○ When possible we provided insights into how the implementation of these recommendations improved the transition to an online curriculum.
There is a substantial body of literature that has emerged post-Covid-19, analyzing academic institutions' experiences in dealing with the challenges posed by the crisis. It would be valuable to incorporate discussions of how these recommendations align with or have evolved in response to the insights provided by the post-Covid-19 literature.
  ○ We added a number of references post-covid-19 to support our arguments.

I think that a succinct explanation of what the CoI means is required in the abstract. Alternatively, the authors can rephrase the sentence about CoI in the abstract to make clear that what they list are three components of the model, i.e., teaching presence, social presence, and cognitive presence.
  ○ Good point, we rephrased that sentence.

ICT (see Tips 1 and 2) should be defined the first time it is used.
  ○ We gave the full text the first time the abbreviation was used.

The authors' recommendation regarding the stimulation of peer support (Tip 8, paragraph on "stimulating student initiatives") matches our experience during the Covid-19 crisis. In particular, our experience in teaching anatomy during the crisis demonstrates that initiatives from students who act as dissection instructors played a key role in coping with the challenges of the transition to online teaching (Mesner Fireizen et al., 2023).

- ○ Thank you for referring to this interesting article. We referred to it in our practical tips.

Competing Interests: No competing interests were disclosed.

Reviewer Report 20 October 2023

https://doi.org/10.21956/mep.21165.r35040

Anita Samuel 🆔

Center for Health Professions Education, School of Medicine, Uniformed Services University of Health Sciences, Bethesda, MD, USA

In this 12 tips article, the authors use the Community of Inquiry (CoI) framework to describe a programmatic transition to the online environment. While the CoI framework has been extensively used and studied, it's application at a programmatic level is novel.

The points noted below are provided to help strengthen this manuscript:

Introduction:
In your Introduction, you say, *The educational institute plays a major role in facilitation of the process.* What 'process' are you referring to here? It is not clearly identified in the preceding sentences.

The Community of Inquiry framework was proposed and developed by Garrison and Archer in 1999. While Richardson et al. have used the framework, Garrison and Archer should be acknowledged.

You note that your tips are divided into 4 themes. It would be helpful to identify which theme aligns with which tip.

Furthermore, how do these themes and tips align with the CoI model? This needs to be clearly stated.

Tip 1 refers to a core educational team. It would be helpful to define what you mean by this. While

the title mentions 'collaboration,' the tip itself primarily discusses communication. Clarification is needed here.

The title for Tip 2 refers to educational ICT infrastructure. However, you only discuss streaming technologies. Educational ICT is much broader than this. You might want to consider reframing your title for this tip.

In paragraph 2 of Tip 3, you say "abovementioned tools." What tools are you referring to?

Similar to tip 2, there is a disconnect between the title and description of Tip 3. The title of Tip 3 refers to digital tools. But the only tools you really discuss are assessment tools. While assessment tools can fall under digital tools, they are not the ONLY digital tools.

Tip 4: In paragraph 2, you say, *To enable everyone involved in online teaching to participate in faculty development activities, both formal and informal faculty development approaches should be used.* Since the title for the tip mentions 'formal' initiatives, this sentence can be removed since the next tip is about informal initiatives.

Tip 7: Paragraph 1 uses the phrase, *during the same period*. What period are you referring to here?

Tip 8: The word "stimulate" is used multiple times. It might help to use different words.

Tip 9: Paragraph 1 you use the phrase "the teacher streamed with video and audio." I'm not sure what you mean here. Some clarification on what you mean by "streamed with video and audio" would be helpful.

Is the topic of the practical tips discussed accurately in the context of the current literature

Yes

Are all factual statements correct and adequately supported by citations?

Yes

Are arguments sufficiently supported by evidence from the published literature and/or the authors' practice?

Yes

If evidence from practice is presented, are all the underlying source data available to ensure full reproducibility?

Not applicable

Are the conclusions drawn balanced and justified on the basis of the presented arguments?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Online education, adult education, educational technology, faculty development

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 03 Jul 2024

Chloé Bras

Dear Anita Samual, Thank you for reading and for your feedback. We have made changes to the paper and its uploaded as Version 2. We believe that version to is much better thanks to your review and feedback. Below we indicate point by point how we have adjusted it in version 2:

- *Introduction: In your Introduction, you say, The educational institute plays a major role in facilitation of the process. What 'process' are you referring to here? It is not clearly identified in the preceding sentences.*

We clarified this with: "transition to online education"

- *The Community of Inquiry framework was proposed and developed by Garrison and Archer in 1999. While Richardson et al. have used the framework, Garrison and Archer should be acknowledged.*
We added Garrison and Archer as a reference and stated that the framework of Richardson et al. was based on the framework of Garrison et al.

- *You note that your tips are divided into 4 themes. It would be helpful to identify which theme aligns with which tip.*

Before the tip we added the theme it aligns to (faculty development, infrastructure, student engagement or teaching activities)

- *Furthermore, how do these themes and tips align with the CoI model? This needs to be clearly stated.*

In every tip we clarified to which aspect of the CoI model it aligns.

- *Tip 1 refers to a core educational team. It would be helpful to define what you mean by this. While the title mentions 'collaboration,' the tip itself primarily discusses communication. Clarification is needed here.*

We clarified core educational team as people who teach the most and added communication to the title.

- *The title for Tip 2 refers to educational ICT infrastructure. However, you only discuss streaming technologies. Educational ICT is much broader than this. You might want to consider reframing your title for this tip.*

Thank you for your suggestion, we reframed the title of the tip to make the focus of the tip more clear.

- *In paragraph 2 of Tip 3, you say "abovementioned tools." What tools are you referring to?*

We were referring to the exam platform. We rewrote the sentence to make it more clear.

- *Similar to tip 2, there is a disconnect between the title and description of Tip 3. The title of Tip 3 refers to digital tools. But the only tools you really discuss are assessment tools. While assessment tools can fall under digital tools, they are not the ONLY digital tools.*

Thanks for addressing, it's true that there are more digital tools. We adjusted the title from digital tools to assessment tools as you suggested.

- *Tip 4: In paragraph 2, you say, To enable everyone involved in online teaching to*

> *participate in faculty development activities, both formal and informal faculty*
> *development approaches should be used. Since the title for the tip mentions 'formal'*
> *initiatives, this sentence can be removed since the next tip is about informal initiatives.*

You are right, and it was also mentioned in Tip 5, so we removed this part in Tip 4.

> ○ *Tip 7: Paragraph 1 uses the phrase, during the same period. What period are you referring*
> *to here?*

We were referring to the period of online education. We adjusted the text to make it more clear.

> ○ *Tip 8: The word "stimulate" is used multiple times. It might help to use different words.*

We changed the text and used different words to make it more clear and easier to read.

> ○ *Tip 9: Paragraph 1 you use the phrase "the teacher streamed with video and audio." I'm*
> *not sure what you mean here. Some clarification on what you mean by "streamed with*
> *video and audio" would be helpful.*

We meant that the teacher was continuously visible during the teaching session. We rephrased the sentence to make it more clear.

Competing Interests: No competing interests were disclosed.