

Teaching Medical Writing

SECTION EDITORS



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Editorial

One of the most challenging aspects of the COVID-19 pandemic has been remote education. Instructors and students, from primary grades to university level to professional training forums, have struggled to teach and learn synchronously online. Here, *Medical Writing* Associate Editor Joselita T. Salita explores challenges – and solutions – in tackling this problem by considering the pedagogical importance of interaction, inclusion of participants, and diversity of activities. It is a timely and valuable article for medical writers who deliver courses, seminars, or workshops in the online environment. **Claire**



Handling the challenges of online teaching

The COVID-19 pandemic created a new type of normality. Many governments attempted to keep the pandemic under control by introducing lockdown measures, forcing educators and trainers to move the “classroom” into a totally different place – the virtual space – in a short time. Not only universities and schools have been challenged by this unusual situation, but companies and organisations providing training through seminars or workshops have been as well. Medical writers who work as adjunct faculty are fully aware of the challenges of a virtual learning environment, but not all of them obtain

enough support from the faculty where they teach. Medical writers who hold workshops for their company or for EMWA’s educational programme have a different “clientele” composed of professionals and highly motivated individuals, but the attention span of even these participants wanes after hours of video conferencing.^{1,2,3} Teachers and workshop leaders have the same aim, i.e. to reach out and effectively pass their message on to their course participants to promote learning. Therefore, although this article shares insights and experience made by educators in a university setting, these insights are likely to

be applicable in other setups such as company webinars and workshops.

Synchronous vs. asynchronous learning

There are two types of online education: (a) synchronous, in which the educator and the students/workshop participants meet in real time by using video or teleconference tools (such as Zoom, Adobe Connect, BigBlueButton, GoToMeeting, etc.) and (b) asynchronous, in which educators prepare their materials for learning and distribute these through online

means, for example, by direct email contact or uploading of materials onto a common digital learning platform (e.g., Moodle, AULIS, STuDiP). Depending on the length and purpose of the teaching, courses can be purely synchronous or asynchronous, or a hybrid of these two approaches.

Asynchronous education uses the model applied in correspondence or long-distance learning, which had its beginnings in the early 1900s.⁴ Some students find asynchronous learning better than the traditional face-to-face learning as they can work at their own pace, e.g. they can skip concepts they already know and re-read new information as often as they want. However, the success of asynchronous learning is dependent on the learner's age, self-discipline, and motivation, and how well the materials have been prepared by the educators.⁵ The challenge for educators engaging in asynchronous learning is the increased time and effort spent on preparing the instruction materials and following up on student progress with assignments and exams. In asynchronous education, the teacher checks and comments on the activities submitted by each student individually, making it almost a one-to-one environment. Therefore, the challenges faced in asynchronous teaching are quite different from those in synchronous teaching, from the point of view of both students⁶ and teachers. This article focuses on the challenges faced by educators and learners in a synchronous online educational setting and offers concrete measures that educators or workshop leaders can use to create a stimulating learning environment. Most of the measures mentioned come from a combination of the author's own teaching experiences and strategies learned from various webinars attended such as that of *Orbium Seminare*, a German organisation that "trains trainers" (www.orbium.de). Workshop leaders may find these methods especially useful if they are preparing workshops held over a whole day or several hours over the course of a week.

The challenges of synchronous online teaching

As Zoom is the most widely used video conferencing tool, this article describes the functions available in Zoom and uses the words "host" instead of "teacher" or "workshop leader", and "participants" instead of "students".

The obvious difficulties that hosts must overcome are the technological aspects of multi-tasking in an online environment. These include stopping and starting screen-sharing during a Zoom meeting while maintaining awareness of their participants' reactions through facial

expressions and messages in the chat box. Another is the noise caused by simultaneous speaking and speaker feedback which may happen if all microphones are active. Therefore, hosts usually mute their participants' microphones – but then have to cope with the difficulty of not being able to easily recognise response from their participants. It takes time for a participant to verbally respond (due to the necessity of unmuting the microphone first) or to write a reply in the chat box. These lags in interaction plus an inherent 1.2-second delay in conferencing systems may make hosts perceive participants as uncooperative.⁷

More difficult to cope with is the lack of genuine interaction in an online environment, especially if the group has more than 10 members. Gestures are an important part of interaction⁸ but are absent in online communication as conference hosts can only see the faces of their course participants. Hosts thus rely on facial expressions, but faces are reduced in size (or cannot be viewed simultaneously) if there are many participants and are lost while the host is screen-sharing on *Full Screen* mode. Eye contact can also be lost in a Zoom interaction, depending on the location of a participant's computer camera.⁹ Eye contact provides cues that help us assess other people's understanding and is especially important in the absence of gestures.¹⁰ In a genuine classroom, the instructor can see all the participants in the room and is more easily aware of individual or group reactions through verbal means, facial expressions, or body language. Even when instructors are writing on the board or showing slides, they always have the opportunity to look at their audience.

Meaningful online interactions are more obviously absent when participants' webcams are turned off. At most universities, instructors cannot require their students to have their cameras on during class¹¹ due to the students' right to privacy.¹² While some participants have their cameras off to maintain privacy, others may be engaging in non-course related activities such as answering their *WhatsApp* messages or sending emails (one survey showed that even adult business people do other tasks while video conferencing³). Most educators complain and find this problematic, but some believe this is no different from the doodling activities done in traditional classrooms.¹³

The short attention spans of participants in an online environment is well known. This is due to distractions and competing interests of participants as well as a new phenomenon called "Zoom-fatigue".^{2,12} Frequent video conferencing lowers one's capacity to concentrate because it requires more focus in the absence of non-verbal cues and thus drains one's energy.⁷ The current lockdown situation with few social contacts and lack of variety in activities adds to negative feelings that cause exhaustion among participants.⁷ For these reasons, online participants easily lose interest and may leave the Zoom meeting without notice; something that would not happen in a face-to-face classroom. These aspects can make online teaching frustrating as the educator may find themselves almost talking alone in front of a black box.¹¹

Learning and constantly listening in an online environment is understandably challenging. Apart from "Zoom fatigue", participants can find learning online difficult when they do not interact with each other¹⁴ but only with their teacher. Interaction of learners with each other can enhance learning,¹⁵ and the host needs to create a perception of connectedness,¹⁶ especially if participants do not know each other prior to the course.

Strategies for meeting these challenges

After considering the reasons why online teaching can be challenging,

let's consider potential solutions based on pedagogic principles using functions available in Zoom and other digital learning systems. Whenever possible, you as the instructor or conference host should make sure that participants' webcams are on. This should be included as a course requirement (along with other minimum technological standards) or agreed upon with participants as meeting rules. If this is not possible for whatever reason,¹² however, you can still encourage reaction from the participants.¹¹

1. Design the course so that it is personal and social. Firstly, make sure that your participants write the names they would like to be called by on their screens. Zoom has a function (in menu bar: *Participants* → *Rename*) so that meeting participants can give their own screen names. This will help you identify participants during an activity. (In a traditional setting, the instructor can catch the

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Figure 1. A padlet link showing participants' entries about themselves and the arrows they have drawn to indicate common interests

attention of a participant by going up to them and establishing eye-to-eye contact, or by describing them or the person sitting next to them; these options are not available online.) Moreover, social presence online can be enhanced by addressing participants personally.¹⁶

2. Build connections between you and your participants, and among the participants themselves, at the beginning of the course. This connection is important as social interaction contributes to higher motivation and learning success (see above) and can be enhanced by sharing of personal stories.¹⁶ If you have a small group, you can give instructions for linking with each other during the course's getting-to-know-you phase, instead of asking each one to introduce themselves while the others passively listen. For example, the instructor can have one person talk about themselves, while listeners show a sign (e.g. crossing their fingers in front of the camera) when they find something in common with the person speaking. When the speaker sees this sign, they should give the floor to that listener. The host sets an example by introducing themselves and talks, for example, about a hobby such as watching football. A participant who is passionate

about watching football may then show their crossed fingers in front of the camera and can then introduce themselves, and the ball keeps rolling. This type of exercise indicates to listeners that they are not isolated entities but have shared experiences with the other participants. In a large group or when some participants opt to have their cameras off, you can establish connections by building smaller groups (of 3-5 individuals) using the Zoom function *Breakout Rooms*. You should give clear instructions that the participants are to talk to each other and, for example, find three things they have in common in three minutes, and that they are to report these to the following plenary session.¹⁷ (The numbers are arbitrary, but for the purposes of clarity in instruction, these values should be given). This activity acts as an ice-breaker and gives a sense of belonging. It is also recommended that you ask participants to exchange email addresses or phone numbers so that they can contact each other after the day's session. In writing classes, you can use the application *padlet* (www.padlet.com) where participants write something about themselves and then read what fellow participants have written. In *padlet*, participants can draw arrows to other participants they have something in

common with (Figure 1). People connected by lines can then be grouped so that they work together for the rest of the course (see no. 3 below).

3. Initiate group activities as often as possible. Zoom's *Breakout Rooms* function is very useful for this purpose. Groups can be manually organised (especially when formed before the meeting) or randomly formed in Zoom during the meeting itself. These smaller groups help participants interact and share what they do and do not know. The host can join any group at will or send chat messages to guide participants in their activities. It is important to give time limits and clear instructions on what should be accomplished in these group sessions. Group activities can also be held after the main online session has ended, where the group participants independently decide when to "meet". Activities can include discussing one's opinions on a controversial topic, summarising the day's lecture, outlining the best solutions to a particular programme, or reading an article aloud while paying attention to each other's pronunciation. Participants are more likely to participate actively in smaller groups during breakout sessions – and also to turn their webcams on.¹¹



Figure 2. Zoom icons that participants can use to express themselves during the session or a screen share. They allow participants to respond faster when their microphones are muted.

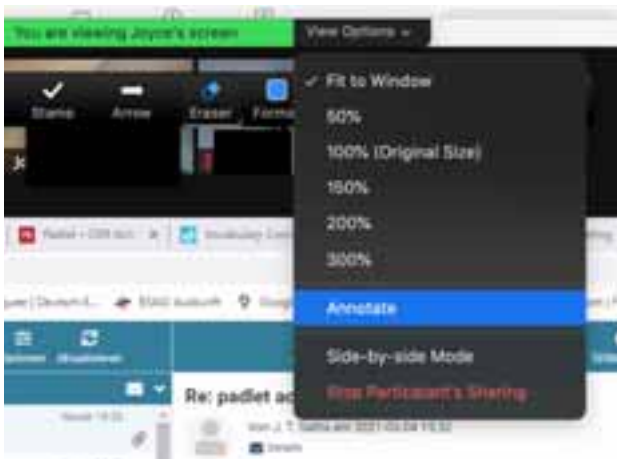


Figure 3. The menu bar that participants can see during a screen share. The Annotate option allows participants to draw, write, or stamp something on the slide being shared.

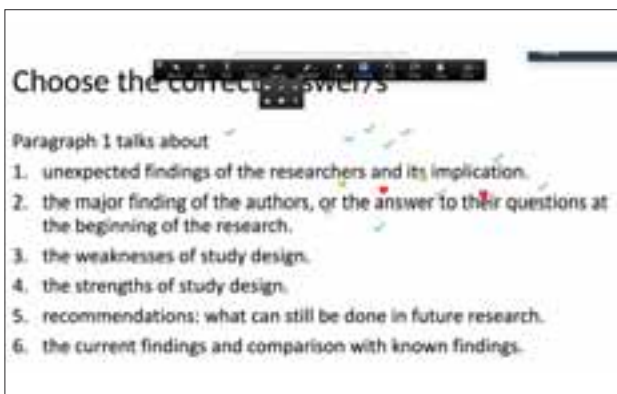


Figure 4. A multiple choice question that the host is showing on a PowerPoint slide. Participants can “stamp” in the form of arrows, ticks, stars, and hearts to indicate their chosen answer. The host can decide whether these responses are anonymous or not.

4. Prepare slide presentations (e.g., PowerPoint) for screen sharing that include more visual cues than words. Engaging your participants during your slide presentation keeps them attentive. Before you start the presentation, tell the participants they can just speak, or write in the chat box, or use the *raise hand* icon found in the option *Reactions* in Zoom’s menu bar whenever they have questions or comments (Figure 2). Better still, design your course so that you actively formulate questions for the students to answer. If the question is answerable by “yes” or “no”, give instructions to click the thumbs-up icon or use the tick or cross (x) icons. You will see these “reactions” appear on their screens and can respond to them. During slide presentation or screen sharing, however, it might be difficult for you to see all your participants’ screens simultaneously. You can remedy this while sharing your screen by asking participants to click on the menu bar saying *View Options* and then to choose *Annotate*, which then shows *Stamp* (Figure 3). There are several icons that participants can choose from under *Stamp* (e.g., a tick or a heart) to indicate their answers to the question you posted in your slide. Figure 4 shows an example of a multiple-choice question where participants marked their answers with a tick or an arrow. This function of Zoom also allows the participants to write texts or draw something on whatever you share on the screen. In this way, they participate and do not just listen. As host, you can access the *Annotate* option while screen sharing, so you can write text or draw with your students while you share the slide (Figure 5).
5. Most importantly, give enough time for participants to respond when you ask questions. Most hosts interpret a time lag as a lack of reaction from participants even if participants are willing to react. Repeat your question and instruction, e.g. to use the *Reaction* option. Enforce this by saying that you are waiting for their answers.
6. Encourage active participation by using the *White Board* option on Zoom’s *Share Screen*. This function is like a blackboard in the physical classroom as it allows participants to write text, add symbols, or draw on the board during Zoom sessions. Thus, both host and participants can write on the board, and they have the same access to the tools in the *Annotate* option under *View Options* (see no. 4 above, and Figure 5). Activities in which participants have to write their ideas on this white



Figure 5. A slide shared by the host showing the menu bar available during a screen share. The host and the participants can enter text or other symbols at the same time during the slide presentation.



Figure 6. A flinga link that allows interactive activity. Anyone with access to the link can drag prepared anatomical adjectives in boxes to the corresponding human body part and can write or edit a box.

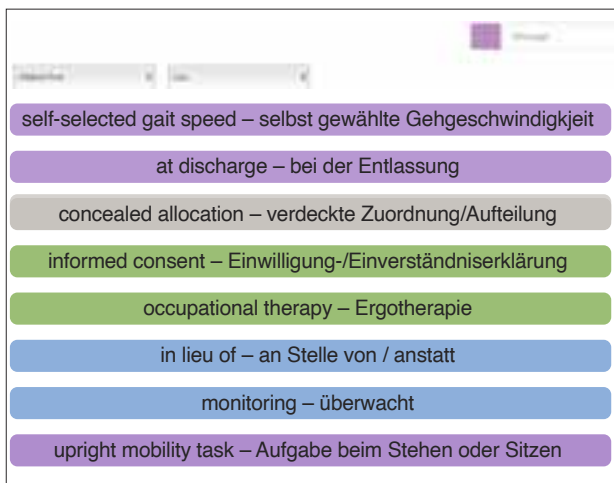


Figure 7. A vocabulary list prepared by the participants during a course using flinga. Colour codes indicate the section of the reading text where the word or phrase occurs.

board or share their own screens (which you as host may or may not allow) makes students think while listening. Interactive tools such as *padlet* (see no. 2 above) or *flinga* (see <https://flinga.fi>) also encourage participants to be active. These free applications act as a virtual notice board. As host, you just go to the application website and give your email address. Once in the application, you can prepare an activity by laying out appropriate formats, and you will be given a link or QR code that can later be sent to the course participants, who access the activity by clicking into the link or QR code (they do not need to register). For example, in Figure 6, participants can drag the jumbled labels of a

human body to the correct place or re-label them correctly in real time. Anyone who is in this link can move and/or write the labels, and this is seen by everyone in the link. These actions can be made anonymous if desired so that no one risks feeling embarrassed due to imperfect answers or worries about offending someone when correcting the work of other participants. Another example that makes participants interact and work as a team digitally is in producing a vocabulary collection. A group of participants can be assigned to read a particular paragraph, and in a *flinga* link they enter words or phrases new to them and their meanings. After a few minutes, the class has a collection of vocabulary for that topic (see Figure 7) that can be saved in *Excel* or as PDF for later retrieval. Such interactive applications are also powerful for teaching writing skills. Figure 8 shows a *padlet* link in which students write a summary of a selected section of a pre-assigned scientific article, either during or outside of class. Anyone in this link sees what is written and can correct or improve entries anonymously. In a genuine classroom situation, students do not necessarily stand up and go to the board to write

their summaries, but these interactive tools allow students to write freely without risking the consequences of incorrect answers. As host, you can also pick an entry to use as an example for class discussion.

7. Make people move during online courses. This is one of the most neglected aspects of online teaching. Although studies have shown that physical activity activates the brain and stimulates learning,¹⁸ hosts forget to make their participants move in between activities. This is as easy as instructing participants to stand up and do some stretching¹⁹ or assigning participants to suggest some stretching exercises. In language courses, this is a creative means of

making learners practise imperative sentences and enrich their vocabulary. Physical movement acts both as a “brain break“ and an ice-breaker.¹⁸ You can also design a task in which participants have to get up and walk. For example, match pairs of participants and ask them to exchange phone numbers, so they can call each other and discuss an issue while walking around.¹⁷

8. Give quizzes in the middle or at the end of each meeting. This can be announced at the start of the class to encourage participants to listen. The quizzes do not have to be evaluated nor do they have to be long or difficult (e.g. they can be trivia quizzes), especially if your purpose is only to shorten the participants’ listening/passive phase and to introduce diversity or avoid monotony. Course-related quizzes give participants the opportunity to check their understanding and ask questions about anything that was not clear. Quizzes based on reading assignments pave the way to start a discussion. Many learning platforms provide the option to make quizzes (e.g. *Moodle*, *Learning-Snack*¹⁷) where participants receive feedback straightaway and can access the quizzes even after the course, thus providing a chance to review what was learned. Such platforms also allow the host to gauge participant understanding as a group or individually. However, learning platforms are not necessary to design quizzes; *Zoom*’s *Polling* function can also be used and is recommended if anonymity is required. The host will not know which students answered correctly but sees the class performance through poll results (although this is only available if the host is a licensed user). Quizzes also can be produced by the participants themselves for fellow participants, a useful activity for learners as they need to actively review the lesson to formulate sensible questions. The application *Quizlet Live* (www.quizlet.com) lets you make game-like quizzes that foster competition between individuals or teams.
9. Get feedback from participants at the end of the day’s session (and not necessarily at the end of the course) to improve teaching strategies during the course. For example, the host can use *Zoom*’s *Polling* function or show a *PowerPoint* slide with a picture of a scale and ask participants to rate the lesson by using an icon to *Annotate* their perceived speed of the lesson (Figure 9; see also no. 4 above).
10. Reserve time after the *Zoom* meeting – there are always participants who have issues to discuss or requests to make. It is helpful if the



Figure 8. An interactive activity in which participants had to summarise an assigned paragraph based on key words at the topmost square of each column. The entries can be corrected or commented on by anyone in the link.

host takes the initiative and offers to stay online after the meeting so that participants with special concerns can take this opportunity. Giving feedback straightaway to participants' concerns and being available one-on-one enhance personalisation and social interaction.¹⁶

Other issues

Assessment

In courses which involve formal education, students have to be assessed at the end of the course. Identifying a fair means of assessing work can be a serious challenge for online educators. Cheating during exams is more obvious in the virtual classroom. Although teachers can require two working cameras positioned at different angles to the student during written exams, this does not guarantee that the student will not access other online resources. Most educators resort to an open book exam that assesses analytical, critical, or interpretative skills, but it is not easy to develop effective exam questions of this type and to assess its answers objectively. An alternative is portfolio assessment, in which students submit a collection of completed written assignments, presentations, and other activities as proof of their competence.

Data protection and copyright issues

Teachers and workshop leaders should be aware of the strict regulations in each country regarding data sharing and the privacy of their participants. It is always useful to inform course participants that slides used for presentation should not be reproduced and the meeting not recorded. Make sure that pictures you use as visual aids are not protected by copyright. You can opt for Google

to search only images under Creative Commons license (in Google, click *Settings* → *Advanced Search* → *Usage rights*). Some instructional materials are also free on the internet, and you can provide the links in lectures or during a presentation. However, not all materials that are downloadable are free for distribution. If you download materials, you have to ask its owner if you can freely distribute it online. This also holds for any material that was photocopied



Figure 9. Participants give feedback by rating the speed of the lesson through using icons available in Zoom during screen sharing.



and uploaded onto the internet for use by your course participants. As a rule, you cannot photocopy and distribute more than 15% of the contents of a book (i.e. from the title page until the last page of the bibliography or appendix) for teaching purposes. Most academic papers with open access can be used and distributed freely as long as they are distributed as individual articles. This means you cannot download or photocopy one whole issue of a journal and distribute it online.

Conclusion

This article has outlined some of the challenges faced by instructors in delivering synchronous online courses and by learners having to cope with Zoom sessions. It has then described concrete measures to meet these challenges. These measures build on pedagogical principles for creating a positive learning experience in remote settings, i.e. to provide Zoom sessions that are personalised, social, and engaging, provide diverse activities, and

encourage physical movement. A positive learning experience leads to a positive teaching experience.

A positive learning experience leads to a positive teaching experience.

By providing opportunities for active participation and self-learning, educators cannot only achieve their own aims but also enjoy the feedback and “company” of their Zoom participants. Indeed, the role of the educator in the online environment has evolved from the classic role of simply giving information to that of facilitating learning through interaction. Medical writers giving a daylong webinar should also acknowledge

this shift. If you merely aim to inform your course or webinar participants, then simply presenting slides online may work for one hour. However, if you really want your participants to take home something important after your webinar, you must enable them to actively participate. As online teaching may continue in the post-pandemic period⁵ due to its flexibility and encouraging students to be responsible for their

own learning, this article is not only useful for the current situation but also for meeting our educational goals in the future.

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Conflicts of Interest

The author declares no conflicts of interest.

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