

# Teaching Medical Writing

SECTION EDITOR



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## The flipped classroom: A new perspective

**M**edical writers who teach academic writing or offer educational workshops might find that a flipped classroom approach offers new perspectives and innovative strategies for enhancing their students' learning.

The intention of the flipped classroom approach is to free up face-to-face class time for creative, interactive, and higher-order learning activities that can give learners greater understanding and retention of concepts.<sup>1,2</sup> In the flipped classroom, participants engage with online material *before* receiving instruction in it in the physical classroom. It is thus a type of asynchronous education. Typical activities in the flipped classroom are pre-recorded videos and quizzes, but discussions, debates, simulations, and peer feedback can also be used.

A meta-analysis published in 2018 found that a flipped classroom approach significantly

improved student learning compared to a traditional classroom approach in the general education of medical, pharmacy, and nursing students.<sup>3</sup> The 28 studies (18 from the US and the others from China, Taiwan, Australia, Canada, and Saudi Arabia) involved 2295 students exposed to a flipped classroom and 2420 students exposed to a traditional classroom. Student learning was measured through post-tests and exams.

Similarly favourable results for a flipped classroom were reported in a US study of college students on an advanced writing course comprising eight lessons on language structure and the writing process.<sup>4</sup> The students participated in traditional teaching or a flipped classroom with pre-class videos and quizzes, and learning was assessed through pre- and post-tests.

Medical writers can benefit from these

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experiences of using a flipped classroom approach in medical education. The main lessons learned are summarised below.

### Pre-recorded videos in the flipped classroom

Many students prefer pre-recorded videos to traditional classroom learning because they feel more motivated and engaged.<sup>3-6</sup> Other benefits of using pre-recorded videos in the flipped classroom include:

- a. Unrestricted access to the video lectures before class allows students to learn at their



own pace, and they can watch a video multiple times to better understand the topic.<sup>1,3</sup>

- b. The freeing up of time in the physical class enables interactive and collaborative activities in the physical classroom, as in the following examples:

- In the advanced writing course reported by Pavanelli,<sup>4</sup> students watched online instructional video lessons on different aspects of language before the class and completed their homework and assignments inside the class, where they worked with the instructor and their peers to share their understanding of the video lessons and received instant feedback on their writing.
- Saba Ayon<sup>6</sup> used videos, PowerPoint presentations, and handouts in a course on how to write different forms of correspondence and scientific texts for engineering, business administration, and graphic design students at a Lebanese university. Face-to-face class time was used for group work and discussions, students' questions, and feedback.
- In a course on English reading and writing for Chinese college students, Zhang<sup>5</sup> created a flipped classroom of videos covering key vocabulary, reading comprehension,

text analysis, and writing skills. The face-to-face sessions were devoted to peer interaction activities (group discussion or project) and teacher-student feedback.

- c. With a flipped classroom approach, the teacher's role changes from an instructor to a facilitator who is able to check the student's understanding, facilitate learning, and encourage deeper exploration of the topic.<sup>5</sup>

Using pre-recorded videos in the flipped classroom can also have drawbacks, however:

- a. Students may be dissatisfied with the amount of pre-class work they are expected to do in the flipped classroom.<sup>2,3,6</sup> Therefore, the total length of all combined video segments is recommended to be maximum 20 minutes.<sup>3</sup>
- b. Although students watch the pre-recorded video tutorials, they may not interact with the content and thus not engage as active learners.<sup>7</sup>
- c. If some students do not watch the pre-class videos, they cannot work effectively with their teammates in class, putting extra pressure on the teacher and other students.<sup>2</sup>
- d. Engin & Donanci<sup>1</sup> found that despite positive feedback on the pre-class videos, most students preferred to have both the video input and an overview from the teacher in the following class so that they could ask questions if they did not understand the input. These authors now include a question-answer session at the start of the face-to-face session.

### Quizzes in the flipped classroom

In their meta-analysis, Hew and Lo found learning benefits from short educational quizzes before the start of a face-to-face class.<sup>3</sup> This finding was supported by Lee,<sup>2</sup> who combined flipped classroom and team-based learning in an English composition course. The quizzes were developed by the instructors beforehand and were used to assess student learning of the pre-class learning materials. Several findings emerged from these studies:

1. The quizzes helped students recall prior knowledge. Consulting prior knowledge helps learners make better sense of new information by connecting it to something they already know.<sup>8</sup>
2. Pre-class quizzes allow the instructor to identify misunderstandings or difficulties and to take remedial action in class, including altering the content of the class (often called "just-in-time teaching", JITT).
3. Quizzes can motivate students to use the pre-

class material. In the advanced writing course reported by Pavanelli,<sup>4</sup> students watched pre-class videos and submitted online quiz answers to ensure they came prepared for class. The questions were reviewed at the start of class, and students then worked collaboratively with the instructor and their peers to share their understanding of the video lessons. Saba Ayon<sup>6</sup> also gave her student pre-class tasks such as short-answer questions and multiple-choice quizzes, and students who failed to submit their answers were considered absent on that day.

### The importance of planning

As in all courses, the objectives of the flipped classroom must be determined before the activities are designed. The increased student participation and dialogue may lead to more effective learning, but instructors may not be able to cover as much material as they have in the past, so they may need to review the learning outcomes of the course.

Creating appropriate learning and assessment activities for the flipped classroom can increase the instructor's workload. Time and effort are required to think about the aim and design of the activities and to then prepare both the pre-class and in-class activities.<sup>6</sup> On the plus side, the pre-class activities can often be reused in the next course with less effort.

Students might resist changing from a lecture approach to a flipped classroom because being passive in a lecture may be easier and less intimidating than being actively involved in a class. Instructors using a flipped classroom need to ensure student understanding of the approach by explaining its rationale and potential benefits.<sup>3</sup> Instructors should state their expectations for the students' input and the amount of time students will need to invest in order to be ready for the class activity.

### Wide range of possibilities for flipped classroom activities

Hew and Lo<sup>3</sup> note that video lectures can use different styles such as recorded classroom lectures, freehand writing videos as used by the Khan Academy ([www.khanacademy.org](http://www.khanacademy.org)), or PowerPoint presentations with the instructor talking or with 2 to 3 people in conversation. Other possibilities are screencasts (recording of a computer screen, usually accompanied by audio narration or captioning) and podcasts (audio files that can be downloaded and listened to) or reusing online content such as websites and videos. Video content should be concise (e.g. maximum 10 to 15-minute segments) and can





include guiding questions to help students recognise key messages in the pre-class activity.

Fassihi created a flipped classroom design for an English as a Second Language (ESL) course in academic writing.<sup>9</sup> She recreated her original face-to-face course as a series of homework and class assignments that mixed videos (created on her own laptop) with assessments, exercises, and online feedback sessions. Instead of reading and annotating her students' essays, she used a screen capture tool to record herself as she reviewed the essays and provided verbal feedback. Students received a 3- to 4-minute video in which they could watch her screen as she read through the essay, offering constructive criticism. This was more efficient feedback for both instructor and student as the corrections were faster and easier to explain verbally than as written comments.

### The Flipped Learning Network

([www.flippedlearning.org](http://www.flippedlearning.org))

The Flipped Learning Network (FLN), a non-profit online community for educators interested in flipped learning practices, notes that a flipped classroom does not necessarily lead to *flipped learning* unless four 'pillars' are incorporated:<sup>10</sup>

1. *A flexible environment* to ensure different learning modes to meet different learners' needs, including a flexible timeline for students to learn at their own pace and flexible spaces that allow students to choose the place and time to learn.
2. *Fostering a learning culture* that moves from a teacher-centred approach towards a student-centred approach and helps students to construct their own learning.
3. *Intentional content* with clear identification of

the materials to be taught in class and those to be explored by the student at home so that classroom time is maximized and used for active learning strategies.

4. *The professional educator* who facilitates student learning and can plan and assess learning activities and act as mentor and problem solver.

### Summary

The flipped classroom approach appears to have considerable potential for effective learning and could be highly relevant in medical writing courses and EMWA's educational training. It allows more class time to be spent on applying key concepts in collaborative and interactive ways and can increase student motivation and engagement in learning. If you are looking for a new approach to your teaching, you might like to experiment with a flipped classroom and explore how preparatory online activities could enhance your students' learning experience.

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### References

1. Engin M, Donanci S. Flipping the classroom in an academic writing course. *Journal of Teaching and Learning with Technology (JoTTL)* 2014;3(1): 94–8.
2. Lee W-L. Teaching English academic writing skills through the flipped classroom model and team-based learning. Presented at the Asian Conference on Technology in

the Classroom, Kobe, Japan, May 11–14, 2017.

3. Hew KF, Lo CK. Flipped classroom improves student learning in health professions education: a meta-analysis. *BMC Med Educ.* 2018;18(1):38.
4. Pavanelli R. The flipped classroom: a mixed methods study of academic performance and student perception in EAP writing context. *International Journal of Language and Linguistics (IJLL)* 2018;5(2). doi:10.30845/ijll.v5n2p3.
5. Zhang X. Researching into a MOOC embedded flipped classroom model for college English reading and writing course. In: Kan Q, Bax S, editors. *Beyond the language classroom: researching MOOCs and other innovations*. Research-publishing.net: <https://doi.org/10.14705/rpnet.2017.mooc2016.668>, 2017.
6. Saba 'Ayon N. Flipped learning: the case of professional English writing course. Presented at the IAFOR International Conference on Language Learning, Dubai, February 2017.
7. Engin M. Extending the flipped classroom model: developing second language writing skills through student-created digital videos. *Journal of the Scholarship of Teaching and Learning (SoTL)*. 2014;14(5):12–26.
8. Hailikari T, Katajavuori N, Lindblom-Ylänne S. The relevance of prior knowledge in learning and instructional design. *Am J Pharm Educ.* 2008;72(5):113. doi:10.5688/aj7205113
9. Fassihi P. Flipped writing class saves time. Available from: [digital.bu.edu/success-stories/flipped-writing-class-buys-time/](http://digital.bu.edu/success-stories/flipped-writing-class-buys-time/).
10. Flipped Learning Network (FLN). The Four Pillars of F-L-I-P™. 2014. Available from: [www.flippedlearning.org/definition](http://www.flippedlearning.org/definition).