

# Lessons From the Covid-19 Pandemic: Student Evaluation of a Newly Implemented Flipped Classroom Approach

António Velha<sup>1</sup>, Noélia Custódio<sup>1</sup>, Maria Carmo-Fonseca<sup>1</sup>, Madalena Patrício<sup>1</sup>

## Afiliação

<sup>1</sup> Faculty of Medicine of the University of Lisbon (FMUL), Lisboa, Portugal.

## ABSTRACT

**Introduction and Goal:** As the COVID-19 pandemic flooded the world throughout the first half of 2020, medical schools were faced with a choice: swim or die – learning shifted radically online as countries went into lockdown. With the easing of restrictions, the Molecular and Cellular Biology (MCB) course at FMUL introduced a flipped classroom approach during semester I, based on pre-recorded lectures followed by face-to-face teaching.

**Material and Methods:** After the final class, 145 first-year students (46%), evaluated their learning experience through an online quantitative Likert Scale (LS)(min.1-max.5) and qualitative open-questions.

**Results and Discussion:** There were strong majorities in most quantitative questions, with little deviation: 95% agreeing/strongly-agreeing that face-to-face and online teaching were well-integrated, pre-recorded classes were relevant (92%), stimulating (75%). Satisfaction was reported on whether the flipped classroom approach allows better management of study time (83%), precludes going to the faculty to attend lectures (84%), and affords greater autonomy in studying (69%). A majority disagreed/strongly disagreed that pre-recorded classes make face-to-face classes unnecessary (69%) and that more classes should have been pre-recorded (68%).

Opinions were divided on whether pre-recorded are better than face-to-face classes (median=3; IQR=2;  $\sigma$ =1,34), with 41% agreeing/strongly agreeing versus 28% disagreeing/strongly disagreeing, and whether the unfeasibility of raising questions during a pre-recorded class worsens learning (median=4; IQR=2;  $\sigma$ =1,37), with 56% agreeing/strongly agreeing versus 18% disagreeing/strongly disagreeing, plus 26% neither agreeing/disagreeing.

Positive qualitative data reports on better management (n=24) autonomy (n=14), organization (n=13) and flexibility (n=6). 'Negative comments' concern the unfeasibility of raising questions (n=31) during pre-recorded classes, insufficient time to cover all topics in face-to-face-classes (n=10), and feedback regarding three classes.

**Conclusion:** Opportunities for educational innovation are becoming apparent with the COVID-19 crisis. Our results show that flipped classroom approaches are well-received among students, corroborating findings of two BEME 2020 systematic reviews (Morris et al. & Daniel et al.). As students seem motivated by positive face-to-face teacher interaction, online innovations must be continually monitored and balanced/optimized, creating a synergic relationship

with preexisting methods.

- Flipped classroom approaches are highly evaluated by students;
- There is significant support but no consensus over the superiority of online pre-recorded versus face-to-face lectures;
- Online learning should not entirely replace face-to-face-learning.

## REFERENCES

1. Gordon, M. et al (2020). Developments in medical education in response to the COVID-19 pandemic: A rapid BEME systematic review: BEME Guide No. 63. *Medical Teacher*, 1–14. doi:10.1080/0142159x.2020.1807484
2. Daniel, M. et al (2021). An update on developments in medical education in response to the COVID-19 pandemic: A BEME scoping review: BEME Guide No. 64. *Medical Teacher*, 43(3), 253–271. doi:10.1080/0142159x.2020.1864310