COVID-19

Staying calm and teaching biochemistry to postgraduates in COVID-19 times: Pros and cons

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Abstract
While we have been looking for alternative educational materials for our undergraduate students, we found ourselves in Covid-19 pandemic and had to think postgraduate education. On the first day of restrictions, our major problem was to learn and find the best communication tool. The first experiences for online meetings were boring, we were not feeling our emotions but as days past we got used to it. We all understand the importance of having alternatives and have to be ready for second choices. During those challenging days, all had more time to work on our completed data, time to write, complete the proofreading of written materials. Other vital scientific activities for career development and profile building such as reading (every meeting with new articles/reviews), publishing and preparing oral presentation were fully completed during the online meetings as a part of lab meeting activities. They learned to improve communication skills, be active participants, and fight.

KEYWORDS
biochemistry, COVID-19, distance learning, postgraduate education

Along with developments on every educational level in recent decades, the need for re-evaluating systems and reconstructing educational tools has arisen in the higher education field. While we were seeking alternative educational materials for our undergraduate students, we found ourselves amid the COVID-19 pandemic. Nobody possessed practical skills for fighting and preventing the COVID-19 pandemic. In Turkey, the first prevention measure lied in the three-week of break for all education levels in March 2020. This was unfeasible at the postgraduate level. As we could not halt our research, we had to think creatively and swiftly transition to a faster organisation.

Besides their postgraduate education programme, the members of my group are working in different positions in various health service departments. Most group members are on different levels of the PhD programme of the Department of Medical Biochemistry of Gazi University and Graduate School of Health Sciences. In addition, a student from the first year residency programme of Medical Biochemistry of the Faculty of Medicine and a PhD student from the Department of Environmental Sciences of the Graduate School of Natural and Applied Sciences were granted a scholarship in my thematic field of toxicology. Their backgrounds consist in chemistry and biology of natural and applied sciences, as well as medicine. They have all been collaborating on various projects for at least a year.

Regarding the forthcoming of the worst days, on the first day of restrictions, the predominant issue lied in learning and identifying the optimal communication tool. It had to be user-friendly, compatible with our various computer systems, and to spare any additional costs for students. We began downloading different online meeting programmes such as Microsoft Teams, Cisco Webex, GoToMeeting, Jitsi, and Zoom on our computers, mobile phones, and laptops. We were unfamiliar with these programmes, and we had never held an online group
meeting before. Although they were extremely basic, it was important to students to be familiar with those programmes. Finally, we selected to use Zoom, which is limited to 40 min, as well as Google Meet.

In the first days and experiences of online meetings, gathering through these softwares was dull, we were not perceiving each other’s emotions. As days passed, we became accustomed to it. We learned how to conduct, discuss, and learn from online meetings and our behaviours adapted to these courses. Thus, these “online, dull, time-limited course” periods became regular meetings and we began to express and manifest our feelings, maybe sometimes louder, shared jokes and discussed our daily lives. Instead of having our routine weekly lab meetings, we gathered more frequently, we planned what we had to discuss and everybody had to listen to each other and be punctual. As we were not going out of our homes, we had more free time for meetings. We gained deeper knowledge about computer technical issues, and problem solving as well as finished the worklist online and meet the deadline. Further, we had much to celebrate, which we were unable to, and we missed going out for dinner.

Since 2012, I strived to use, teach, and become familiar with virtual learning materials. At our universities, we had been urgently needing those materials due to the increased number of students in our laboratory classes. Although I had introduced many of the virtual, online education programmes to my group, most did not spend time on them. However, they had time during the COVID-19-related shutdown. We all understand the importance of having alternatives and to be ready for second options. The Scientific Research Projects Department of our university refused our virtual learning proposal since it was not a priority. I had the opportunity to report and emphasise the need for developing new applications using alternative learning techniques and resources for modern experimentation in teaching biochemistry laboratory at different educational establishments.

The first 3 months were challenging for the wet laboratory and research as we completed the ongoing work in a few days, and the in-person research was halted. In the first 2 months, the topic of discussion was COVID-19. Students who had attended the different webinars shared the updated knowledge, and discussed the COVID-19 laboratory results. At each meeting, one of us discussed haematology, cytokine storms, blood gases, and routine laboratory results. We did not halt the theoretical biochemistry class; further, we studied this topic on a deeper level than usual. We had more time to work on our completed data, to write, and complete the proofreading of a lab book as well as a translated textbook. We all used our time more efficiently than ever.

What happened to our laboratory in our experiments? The ongoing experiments were completed, and research assistants used the laboratory one by one. Subsequently, we halted research for 2 months. The first weeks of June marked the return to “new normal” daily life, we opened our lab to complete the outstanding experiments through simple and daily methods. We limited our hours in the lab and worked in shifts. Those who are familiar with lab practice progressed well. However, the newcomers had to stop for at least 3 months. Henceforward, we do not know exactly when the safe days will return, allowing us to return to the lab. The academic years of spring 2019–2020 and autumn/spring 2020–2021 were transitioned to an online format for postgraduates. They were rid of practicals, and the only learning tools for postgraduates were virtual webinars and online courses. We did significant paperwork, and everyone learned to write a research article. Other vital scientific activities regarding career development and profile building such as reading (new articles/reviews were introduced at every meeting), publishing, and oral presentation (seminars with simple

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**FIGURE 1**  Postgraduate timeline: What did we do? What will we do? [Color figure can be viewed at wileyonlinelibrary.com]
presentations) were completed during the online meetings as part of lab meeting activities. Group members did not have time to feel bad as they had to work, be active participants, and improve their communication skills.

Our postgraduate programme lasts at least 2 years for the thesis, and our students had the opportunity to extend their time. In the last 6 months of experiencing COVID-19, although we were away from the lab, we performed well online. Students learned about their weaknesses and improved them. Nevertheless, for the next 6–8 months, we are planning to use more interactive programmes, develop virtual skills to produce our own materials, and compare them to other countries as well (Figure 1).

I also want to thank the FEBS Education Committee which allowed Ambassadors to gather through their organisation in 2016. Since 2016, we held 2-day workshops, argued about educational issues, and had rapid briefings about our countries’ life science education systems annually. During the COVID-19 pandemic, considering the experiences of other countries and being aware of education systems enabled me to reach my students and contribute to the education programmes. From my perspective, 2020 was supposed to be the year in which I would share all educational activities with various organisations in different cities with my colleagues and students. Although I had to cancel face-to-face courses, symposiums, and workshops, we will meet online.

Not having anything, being online, staying home, and working on science online via virtual techniques will be a success.

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