Teaching Tips/Notes — NACTA Journal

The challenges of distance learning in a Food Safety and Food Law course during the COVID-19 pandemic

Abstract

The spread of COVID-19 has created unprecedented chaos and stress in all areas of life and has negatively affected education systems worldwide. This pandemic has led to the closure of schools and universities, which has severely disrupted learning, academic activities and the career plans of millions of young people. As a result, many countries have switched to distance and online learning in an effort to address the ongoing educational needs during the pandemic. For example, at the University of Food Technologies in Plovdiv, Bulgaria, the Food Safety and Food Law course is a fundamental, required part of the curriculum. The current pandemic has necessitated new methods for effectively presenting the content of this course in an accessible and stimulating way. Thus, the aim of this paper was to share our experience in providing non-traditional methods of conducting classes in the Food Safety and Food Law course during the COVID-19 pandemic.

Introduction

The COVID-19 pandemic has affected education systems worldwide as schools, colleges and universities have been forced to find innovative ways to communicate course content in order to successfully complete the academic year. As the need for social and physical distancing has become increasingly necessary in order to help to slow the spread of COVID-19, educational institutions have had to implement new and creative teaching methods as safety concerns have disrupted traditional, in-person classes. One of the main goals of any education system is to combine theoretical knowledge with the application of that knowledge via practical training. The new measures necessitated by the COVID-19 pandemic have clearly challenged the provision of practical training to students during the ensuring social isolation phase. Within the discipline of Food and Nutrition sciences, food safety is a fundamental science content area. The course entitled Food Safety and Food Law in the University of Food Technologies provides in-depth theoretical and applied training in the chemical, microbiological, technological and managerial aspects of food safety. This training is based on the concept of synergistic linking of best technological practices with the requirements of modern food safety systems based on a process approach to risk management in the food chain. For example, food safety training is most effective when messages are aimed at changing behaviors that are most likely to lead to foodborne illness. Such training is thus related to the primary factors that control the spread of

pathogens. These factors include personal hygiene, proper culinary treatment, avoidance of cross-contamination, maintenance of food at safe temperatures and avoidance of food from hazardous sources. Effective food safety training also requires a practical aspect that is difficult to achieve in an online environment. Our efforts in this regard have therefore focused on providing maximum practical information through video demonstrations, virtual laboratories and case studies.

Online learning during the COVID-19 pandemic requires the use of the Internet, computers, mobile applications and distance learning systems in education, which have made it possible to remove restrictions on the inclusion of more learners at any time, anywhere in the learning process. On the other hand, the limited access of some students to an Internet connection, mobile applications or the quality and duration of video connections has proven to be a disadvantage that has resulted in a negative impact on learning outcomes. For this reason, it was necessary to use different methods in communication - synchronous and asynchronous.

Synchronous learning is an important face-to face educational tool that enables the student to interact in real time with the lecturer and other students simulating the experience of in-person learning. The primary advantage of synchronous learning is that feedback is immediate and simultaneous, and students have the opportunity to ask for help in real time. The other learning model used during distance education is asynchronous learning. With this method, the student does not interact in real time with the lecturer and other students. Some of the technologies for asynchronous training include online classrooms, e-mail, message boards and more. The main advantage of asynchronous learning is that the learner is in control of the rhythm of learning. Some students need more time to review and digest the study material and then work on coursework, case studies, etc. provided by the lecturer. For some of our students who are more visual learners, watching videos may be the most effective way to comprehend content. Others can learn better by participating in online discussion forums. Giving students the opportunity to become an active participant in their learning in the online classroom can mean providing different media (video, text, visualizations, etc.) to introduce each new lesson or concept. Thus, in order to achieve quality transmission of the course content, it is necessary to apply innovative teaching methods: group work, project-oriented learning, discussions, case studies, role-playing games, game method, brainstorming, cooperative learning, discussions, etc. (Table 1).

Table 1. Training techniques in the online course Food Safety and Food Law

Training techniques	Implementation	Method	Reference
Survey	There is no one-size-fits-all approach to teaching. A survey was conducted before the start of the "Food safety and Food Law" course in order to help us to assess each learner's general knowledge, their current understanding of the topic about Food safety and their different learning styles. This information allowed us to design, adapt and implement the course to better serve our learners' needs.	Asynchronous	Shamsudina et al., 2013
Case-study method	This is a teaching strategy in which students must apply their knowledge of food safety to solve real life problems. They must analyze the case described and offer the best possible solution.	Synchronous/asynchronous	Gallego et al., 2013
Simulation	In a simulation, the students perform a certain activity under conditions as analogous as possible to those of the real situation. The method is useful when practice is required in order to perform certain tasks. The method also allows participants to directly apply what they have learned. The simulation can only be part of the activity. It is necessary for the simulation to be as close as possible to the actual conditions in order to allow the participant to directly connect the learning to the real world.	Synchronous/asynchronous	Falloon, 2019
Role-playing games	A role-playing game is a type of simulation that requires active participation and the application of the acquired knowledge of food safety practices. The role play serves to imitate real activity in an artificially created situation. Participants either play certain roles or are active spectators (jury). The purpose is to acquire skills and habits for real world action and decision-making. The game increases the interest in learning, develops independence in students and introduces them to the role structure of the activity. It also serves to transfer knowledge and form basic social skills. The lecturer is most often an arbitrator.	Synchronous	Randi and Carvalho, 2013

Brainstorming	Brainstorming encourages the full participation of each participant and helps to stimulate thinking. It allows less-experienced participants to benefit from the experience of more advanced ones. It also allows the lecturer to assess the level of knowledge and abilities acquired by the various members of the group. The most effective method is in the final stages of the training when the participants have some knowledge of the topic in order to be able to create their own ideas. The lecturer leads the discussion and motivates engagement by the participants in case they are not active enough.	Synchronous	Unina and Bearing, 2016
Demonstration	Demonstration is a method of teaching that includes showing objects or didactic materials accompanied by descriptions and explanations, through which students receive information about the studied phenomena. When combined with traditional methods, demonstrations can be effective for low-achieving students with high visual and spatial intelligence but with limited cognitive abilities.	Synchronous/ asynchronous	Basheer et al., 2017
Mindmapping	A mind map is a graphical way to represent ideas and concepts. It is a visual thinking tool that helps to structure the information, helping students to better analyze, comprehend, synthesize, recall and generate new ideas.	Asynchronous	Simonov, I. 2014

The e-learning part of the distance learning process refers to interactive learning that uses computers or communication technologies as a teaching tool. With e-learning, it is not just about replacing the teacher with a computer; electronic technologies are involved in the entire learning process - preparation, presentation and testing. However, the teacher remains in a leadership role by structuring and preparing the curriculum. The purpose of e-learning is not to displace live contact, but to combine effective technology with other teaching methods in order to improve educational outcomes.

Summary

Although distance (home-based, in this case) learning is not entirely unknown to students, the challenges associated with receiving formal education at home has proven to be daunting for students, lecturers and parents. This result was clearly observed in Bulgaria, where accessibility, availability and use of technology for education were inconsistent throughout different parts of the country. Universities faced additional costs for access to online education, and a number of students and faculty had network connectivity problems, inadequate power supply, poor digital skills, inaccessibility and

availability problems - all factors that hindered successful distance learning. Moreover, the social isolation of families and friends the fact that a large part of the population lost their jobs and business during the pandemic and all of the accompanying stressors led to difficulty in focusing on the material plus a loss of motivation and self-discipline. The COVID-19 pandemic thus necessitated the rapid and enhanced adaptation of technology to the learning process. This paper has shown a model for applying new trends and teaching methods that will help to support the success of students taking the online Food Safety and Food Law course.

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