Short Communication

Zuber D. Mulla, Valerie Osland-Paton, Marco A. Rodriguez, Eduardo Vazquez and Sanja Kupesic Plavsic*

Novel coronavirus, novel faculty development programs: rapid transition to eLearning during the pandemic

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Abstract: The novel coronavirus disease 2019 (COVID-19) has caused a rapid and massive transition to online education. We describe the response of our Office of Faculty Development at Texas Tech University Health Sciences Center El Paso (TTUHSC EP) to this unprecedented challenge during and after this post-pandemic crisis. The initiatives for emergency transition to eLearning and faculty development described in this paper may serve as a model for other academic health centers, schools, colleges and universities.

Keywords: COVID-19 pandemic; eLearning; faculty development; online learning.

Background

Texas Tech University Health Sciences Center El Paso (TTUHSC EP) is a small health sciences university located in far West Texas on the US-Mexico border. It consists of four schools (medical, nursing, graduate school and dental) with approximately 400 full- and part-time faculty members. Approximately 93% of our faculty members

are clinicians [1]. Our institution has a robust Information Technology (IT) department and numerous academic solutions for technology-assisted learning but does not have an institutional-level office that supports the delivery of curricula through eLearning methods.

The Office of Faculty Development (OFD) consists of six team members (four staff and two faculty) with different but complementary skills, and serves the faculty of all four schools. The associate dean is a clinician-scientist (M.D., Ph.D.) and the assistant dean is an epidemiologist (Ph.D.). Every year the OFD conducts multiple faculty development programs; from the Institutional Faculty Development Course, Leadership Development Academy, Institutional Faculty Mentoring Program, writing interest group and the continuous faculty development program, leading to approximately 1000 contact hours per year. To better serve the diverse needs of our faculty, during the last 3 years the OFD was systematically building curriculum in a learning management system (LMS) to complement our face-to-face learning activities [1].

Emergency transition to eLearning

As the leadership of clinical services at TTUHSC EP was mobilizing healthcare workers to prepare for an influx of patients with coronavirus disease 2019 (COVID-19), the OFD was working in the background preparing the contingency plans for academic and faculty development resources that would be available in 100% eLearning formats. An intense effort to reformat the face-to-face sessions for teaching, research, clinical skills/simulation and leadership modules to eLearning solutions began in early March 2020. Simultaneously, the OFD assisted faculty and staff in the transition of course materials into eLearning formats and into an LMS, as well as creating guides and instructional videos on how to use our LMS and how to create and upload the learning material and quizzes for their learners. This was followed by providing assistance

*Corresponding author: Sanja Kupesic Plavsic, Texas Tech University Health Sciences Center El Paso, Office of Faculty Development, Department of Obstetrics and Gynecology, Paul L. Foster School of Medicine, 5001 El Paso Dr., MSC 21007, El Paso, TX 79905, USA, E-mail: sanja.kupesic@ttuhsc.edu

Zuber D. Mulla: Texas Tech University Health Sciences Center El Paso, Office of Faculty Development, Department of Obstetrics and Gynecology, Paul L. Foster School of Medicine, El Paso, TX, USA

Valerie Osland-Paton: Texas Tech University Health Sciences Center El Paso, Office of the Provost, El Paso, TX, USA; and Texas Tech University, College of Education at Texas Tech University, Lubbock, TX, USA

Marco A. Rodriguez and Eduardo Vazquez: Texas Tech University Health Sciences Center El Paso, Office of Faculty Development, El Paso, TX, USA

to the nursing and medical school faculty in the creation of an eLearning course on COVID-19, and the use of personal protective equipment.

The OFD team also collaborated with our institution's Director of the Office of Clinical Informatics and Digital Health on the creation of a comprehensive, institution-specific 4 Continuous Medical Education (CME) hour online course on the initiation of a telehealth visit. The OFD lead analysts created two videos for patients (in English and Spanish) on how to schedule a visit with providers at our institution. Production of these eLearning materials enabled us to implement telemedicine at our institution successfully. Through the creation of this course we improved not only individual competency of our faculty, but also our collective capacity.

The creation of a quality eLearning program is a high-input operation, requiring time and expertise to design and develop, and significant investments to run, monitor and report on its outcomes. Educational institutions with a tradition of online education have well-structured offices for pedagogy and solution support. Due to the rapid transition to eLearning during the COVID-19 crisis, we believe that many educational institutions with limited or no experience in eLearning experienced problems with instructional design and lack of interactivity (faculty to student, and student to student), technical and connectivity problems, threatening the best practices of eLearning which require time to implement and refine [2–6]. Table 1 reviews the advantages and limitations of synchronous and asynchronous eLearning processes.

At TTUHSC EP, institutional leadership had implemented policies but they were in the process of being updated and required rapid deployment to create an eLearning Committee that provides a point of engagement as well as learning about best practices to support student learning in the eLearning environment and related regulatory requirements. Figure 1 illustrates the recommended process of the emergency transition to eLearning, emphasizing the role of faculty development, from providing the information about the institutional resources and regulations for transitioning to eLearning, through faculty training, technical support, video production, instructional design services, assessment suggestions to the dissemination of crash courses.

In the post-pandemic world, face-to-face instructional activities should be selected based upon student learning assessment that demonstrates that this form of delivery (face-to-face) is the most likely to advance learning. These environments might be a small group discussion, or simulation-based activity. Face-to-face learning should be complemented with novel eLearning experiences, from

synchronous instruction, to asynchronous delivery of course materials, and then hybrid learning environments where higher-order thinking skills are developed [7].

eLearning experiences should always be created with the learner at the center, focusing on promotion of the efficient use of all pedagogical opportunities and based upon evidence related to the highest student learning outcomes. Such experiences are dependent upon significant support for faculty development as well as support for student self-regulation in eLearning environments [3]. Despite the opportunities to create rich eLearning environments, there are limitations on its utilization, particularly in clinical environments where it is critical for students to interact with patients in face-to-face settings. Consideration of the social, emotional and psychological development of learners is vitally important to ensure acquisition of the requisite clinical knowledge, communication skills, as well as professional behavior, compassion, empathy and resilience. Providing structured, individualized feedback in the eLearning environment is challenging. This challenge may be especially acute for faculty members who have not acquired pedagogical skills in eLearning prior to the rapid deployment of eLearning solutions during the pre-pandemic period.

Role of the OFD in the emergency transition to eLearning

TTUHSC EP did not have an office for eLearning. This gap was bridged using the talents of two lead analysts in the OFD who have strong instructional design skills and keen LMS knowledge. The lead analysts were engaged to form the first institutional-level eLearning support unit. The starting point of a successful transition to eLearning in our institution was the identification of and collaboration with key collaborators in each department and every program. The great majority of our collaborators were current or past participants of our faculty development programs. Partnering with these enthusiastic faculty and working in synergy with the Office of the Provost were equally important for the successful continuation of the OFD's academic services and our productivity.

Faculty development in the post-pandemic world

There is a saying that with crisis comes opportunity. In the past, the OFD was providing courses and engaging

Table 1: Advantages and limitations of synchronous and asynchronous eLearning.

	Synchronous		Asynchronous	
	Advantages	Limitations	Advantages	Limitations
Interaction	Real-time interactions between instructors and students and students-to-students	Advanced organization and coordination of all learning activities required to ensure that the synchronous sessions achieve learning outcomes	Instructors and students can initiate interaction 24/7 via multiple solutions – email, discussion forum, chat	Delay in timing of responses, dialogue is written or recorded, responses occur over time and sometimes there are lapses in the dialogue
Technology	Live sessions with audio, video and content sharing options	Inadequate internet connection, webcam and/or audio functions may undermine student experience and satisfaction	Reduced bandwidth required for compressed files in audio and video sharing. Less disruption in delivery. Access to the course 24/7	Technical problems with course delivery during non-working hours require support staffing that may or may not have been provided or contracted. This may postpone the learner's participation
Learning management system	LMSs include many options for content delivery, learning activities and assessments, as well as synchronous course meetings	Unless staff support is available, instructor knowledge of LMS may be limited and interfere with the learning experience	The institution-approved LMS provides a consistent learning environment that students can master to minimize disruption in learning	Instructor, instructional designer and student efficacy in eLearning environments, as well as the usability of the LMS
Instructors	Instructors schedule interactions with students in group and individual sessions	As with F2F instruction, the instructor must be prepared and knowledgeable of the topic to respond to students' questions and perspectives	Flexibility: Material is delivered and prepared in advance	Detailed instructions are required, so the learners are supported to accomplish their tasks
Learners	Learners plan for class meetings, can be assigned individual and team-based learning and teaching roles, can share their content	Students need to attend sessions to benefit from the learning experience. Learners may review content from recorded sessions, but interaction is undermined by non-attendance	Flexibility: Connection from most locations at any time	Consistent attendance and engagement require learner self-regulation that may not have been developed
Assignments	Assignments are delivered, submitted and evaluated in the LMS with the opportunity for significant written and/or audio feedback	Feedback can be accomplished via LMS, phone, or email but depends upon the instructor to arrange	Assignments can be scheduled and made available in advance at scheduled times. Rubrics can be designed, grading can be automatized and rapid feedback available to learners	Automatized assignments may limit the quality of the instructor's feedback and knowledge assessment
Time	Both synchronous and asynchronous courses are high-input operations, requiring instructor's expertise, time and familiarity with course development and design; significant investment in the LMS; expense of the technical support staff necessary to run, monitor and report on the outcomes of the eLearning courses			

LMS, learning management system; F2F, face-to-face.

our faculty in the benefits of eLearning. Although we had numerous early adopters, we also had faculty who were resistant to transitioning from face-to-face instructional practices. What the OFD could not accomplish earlier, the novel coronavirus changed overnight. During the COVID-19 crisis, educators realized the advantages and limitations of eLearning solutions. Despite many advantages, eLearning

must be coupled with face-to-face instruction in clinical environments for our learners in the health sciences. In our view, in the post-pandemic world, the first portion of the faculty development process will predominantly occur within the eLearning environment where faculty development program participants will learn new skills and new roles and engage in highly interactive assignments [8].

Figure 1: Process of e-Learning course submission and creation. eLCC, eLearning compliance committee.

The OFD envisions sessions where faculty will be engaged in the same interactive learning activities that are part of a well-designed eLearning course. This would be facilitated through discussion forums. The second portion of the development process, the application of knowledge and skills, will predominantly occur at the workplace. This precious in-person teaching time will be more productively utilized for individual learning, small group discussions, debates, writing groups, simulation-based activities and guided practice in the work setting.

Conclusion

eLearning implies distance, but at the same time, and in the global world, it implies connectivity. Additionally, we appeal to the major publishers of scholarly content to have equivalent author copyright transfer agreements. Having uniform copyright agreements between scholars and journal publishers that allow authors more flexibility in sharing their published material, in a responsible manner, will support effective eLearning. Finally, educators, academic leaders and learners should not be discouraged as we believe that all of us will emerge from this crisis stronger, wiser and more experienced in the use of eLearning and implementation of digital health.

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