Tips, Tools, and Techniques to Transform your Traditional In-Person Course to an Online Course

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Abstract

Technology has provided many tools and techniques to enhance learner interaction and class participation in in-person courses. However, transforming a traditional in-person course into an online one is not a straightforward task, even with all the present technology. This task requires a comprehensive course redesign that includes course goals, learning objectives, assessment criteria, informative rubrics, topics schedule, and the technology needed to implement the course. This paper will present the crucial elements that one should consider in planning online courses, such as synchronous versus asynchronous, active learning and engagement in an online classroom, communication strategies, and assessment methodology. Assessment is a vital aspect of the educational system to meet the learning objectives. This paper will also analyze the various assessment methods for online education to ensure academic integrity. Moreover, this paper will review techniques to promote instructor presence to improve learners' performance through discussion boards, rubrics, and video mark-ups.

Keywords

Online teaching, assessment methodology, communication strategies, engagement, feedback techniques, outreach, rubrics, video mark-ups, synchronous, asynchronous

Introduction

Technology has changed many aspects of our lives, and education is not an exception as it has enabled online learning, a virtual learning community without any borders. The term "distance learning" was used for many forms of non-traditional education, including telecourses, correspondence courses, CD-ROM courses, and online courses [1]. Higher education's most rapidly growing feature is online courses, as most learners take at least one course online during their college career [2]. COVID-19 has accelerated online education at all levels as educational institutions had to shift into emergency mode. Most of us in the academic community have improved our teaching skills and revised our teaching practices and strategies to adjust to the new norm of the online classroom.

Moreover, engineering education has transformed from teacher-focused chalk and talk methodology to learner-focused interactive, project-based courses, activity-based learning to foster collaboration, design innovation, and critical thinking skills [3]. The use of technology for in-person classes enhances learners' instruction and engagement and improves classroom efficiency. However, sometimes technology is solely used for fun instead of teaching and learning. When choosing the technology to apply in a face-to-face or online course, educators need to consider the following two questions: Does the technology promote learner-to-learner interaction? Moreover, does the technology promote instructor-to-learner interaction? The

transformation of a traditional face-to-face course into an online system involves a thorough review of the course dynamics[4]. This paper will discuss the significant aspects we need to consider while transforming the traditional face-to-face course to the online format, including teaching format, syllabi, course content and structure, Learning Management Systems (LMS), online activities, classroom interaction, assessments, rubrics, and feedback.

Teaching Format

The transformation of a traditional face-to-face course into an online course involves the use of technology tools but also requires learners to be as professional at home as they were in the brick-and-mortar learning environments. Learners would come to class dressed appropriately, with all their materials, and ready to learn in-person classes. The newfound ability for learners to chime into their courses from home via video conferencing has completely changed the way learners receive their lessons, as shown in Figure 1. There are three major formats of teaching online: synchronous, asynchronous, and hybrid blended.

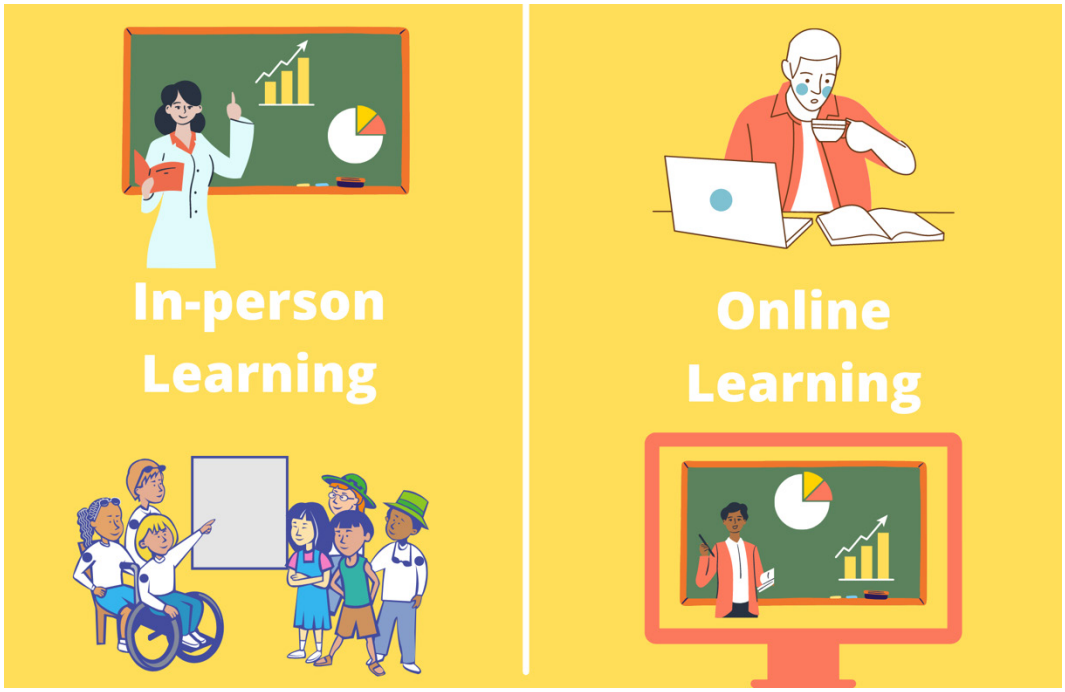

Figure 1. Depiction of Traditional Education vs. Online Education

Synchronous is real-time teaching where learners are logged in simultaneously and communicate directly with the teacher and other learners. Direct interaction among instructors and learners enhances class participation, allows learners to ask questions, clarify doubts on the spot, and help to break the learner's isolation. Live interaction between instructor-to-learner and learner-to-learner occurs mainly via video conferencing using Microsoft Teams, Zoom, and WebEx, to name a few, where the instructor controls the class' dynamics.

The asynchronous format provides learners great time flexibility as they log in to watch the course contents whenever convenient. The interaction among learners and instructors happens with a delay in time via email, question and answer (Q&A) sessions, forums, feedback, and

online discussion groups. The asynchronous format requires learners to take even more responsibility for their learning.

A hybrid or blended format combines both asynchronous and synchronous teaching formats. Blended learning provides the learner with time flexibility and learner control of the pace of learning, augmenting its synchronous component to interact with the teacher and other learners directly. The ratios of synchronous and asynchronous components are not fixed in blended learning [5].

For online teaching, instructors can play a more effective role by guiding learners to engage with the course materials, organizing their learning, due dates, and estimating the time required to complete each task [6]. Many learners do not adhere to the rules and policies instructors have for their face-to-face classrooms when they opt for online learning. This can seriously affect learners taking the course in the synchronous format. For example, often, learners log on to their video platform from their bedrooms, still in bed and half-asleep. Other times, learners take advantage of the option to take the course from home, and instead of being at home, they access the lessons while driving, erroneously thinking that they will get credit simply because they are logged into the course. Promoting self-discipline and the dress code policy adherence is recommended to avoid learners' unprofessionalism when accessing the class from home. Additionally, learners are advised to sit at places conducive to learning during the lecture to avoid distractions. Once the professional environment has been extended to their homes, then the use of technology will serve its purpose.

Syllabus

A syllabus is a lesson-by-lesson guide of the course contents the instructor plans to teach. The syllabus may also include the course description, objectives, textbook, labs, marking breakdown, assessments, schedules, and grading scale. After a thorough revision, many traditional course features and elements can be utilized for online course instruction. However, these instructional materials and learning activities need to be updated using the technology tools that are readily available for learners. In order to begin online teaching with an online presence, it is highly recommended to include a welcome video in the syllabus.

Clear communication expectations through email, video, chat, and discussion boards, play a vital role in keeping learners motivated. Adding these guidelines in the syllabus sets the level of engagement that instructors are expecting from their learners. It should also be clear how often instructors expect them to participate on discussion boards and other contributing expectations.

Most online courses require a good laptop, reliable internet, a webcam, a headset, a printer, and a scanner. Moreover, online proctoring services such as Respondus LockDown Browser may require a specific operating system and browser versions with a suitable internet speed for any proctored exams. A printable pdf version of the course material will also be helpful as learners can download it and review it offline.

Course Content and Structure

The online course requires a more focused approach to divide the course contents logically. The Canvas LMS, for example, helps instructors organize the course contents for the learner to

navigate with ease. A well-developed online course should open to a home page. This home page should include a welcome message to learners, preferably in the form of a video to connect the course to a human being, information about the instructor with a recent photograph, and the course-level outcomes. The first module of the course should be the general information module. Under this module, there should be a link to the eBook, if one is used, and a tutorial made by the instructor on how to use the textbook.

Additionally, there should also be a page containing links to the technology applications used in the course. There should also be a short video on how to submit written and/or voice recorded/video assignments. Another critical step of the general information module is the syllabus. Other additional steps under the general information module are the institution's academic calendar for online courses and information on how to register for online assessments through SmarterProctoring, Honorlock, and Respondus LockDown Browser.

Each weekly module should begin with an information page about the learning activities and the course-level outcomes. The learner should always know what they will learn after completing the module. Any instructional videos that must be watched before the assignment should be included in separate steps of the module using an external URL or external tool. Also, include an optional materials page for those learners who would like to explore further the material being covered. Finally, the assignment must be accessed after they have gone through each module step in order, and every assignment must include a rubric to show the distribution of points. If every module is organized in the same fashion, the learner will always know what to expect and will never feel lost during the online learning experience.

Learning Management Systems (LMS)

When considering what technology tools to use in an online class, it is imperative to consult the institution's LMS and its productivity suites. Many colleges and universities are using the Canvas LMS and Office 365. The Canvas LMS provides technology tools for asynchronous and synchronous learning such as Canvas Studio, Chat, Discussions, and Web Conferencing. These technology tools provide a robust, technology-rich teaching and learning experience. When combined with such productivity tools as Microsoft Office 365, educators can create interactive lessons with such applications as Sway, OneNote, and Teams. Likewise, learners have the ability to produce work using the aforementioned applications that, in addition to making their work more engaging, learners will acquire technology skills from Office 365, a productivity suite used by most companies and businesses.

When considering how best to promote learner-to-learner and instructor-to-learner interactions in an online course, instructors again must research all the applications that their LMS has. In the case of the Canvas LMS, Canvas provides the following applications to engage learners in synchronous and asynchronous active learning: Chat, Discussions, and Web Conferencing. Because learners who take online courses are most likely geographically dispersed, a good idea would be to create weekly synchronous learning activities where the weekly sessions vary in days and times. In this fashion, every learner will have the opportunity to participate a few times a semester. Synchronous online also provides the instructor with the opportunity to assess learners in real-time plus promotes learner-to-learner as well as learner-to-educator interactions.

Online Activities

Several factors must be considered to transform a face-to-face course into an effective online course, as shown in Figure 2. First, the instructor needs to revisit the course-level outcomes. Reading over the course-level outcomes will guide educators in creating module/unit-level outcomes that connect to the course-level competencies. As for the module/unit level outcomes, educators should consult the Revised Bloom's Taxonomy to create learning activities that promote its six categories: Remember, Understand, Apply, Analyze, Evaluate, and Create [7]. These six categories are Factual, Conceptual, Procedural, and Metacognitive. When creating the unit/module level learning activities, each activity should include Bloom's Learning Objectives and possibly use the following statement: "Learners will be able to…...".

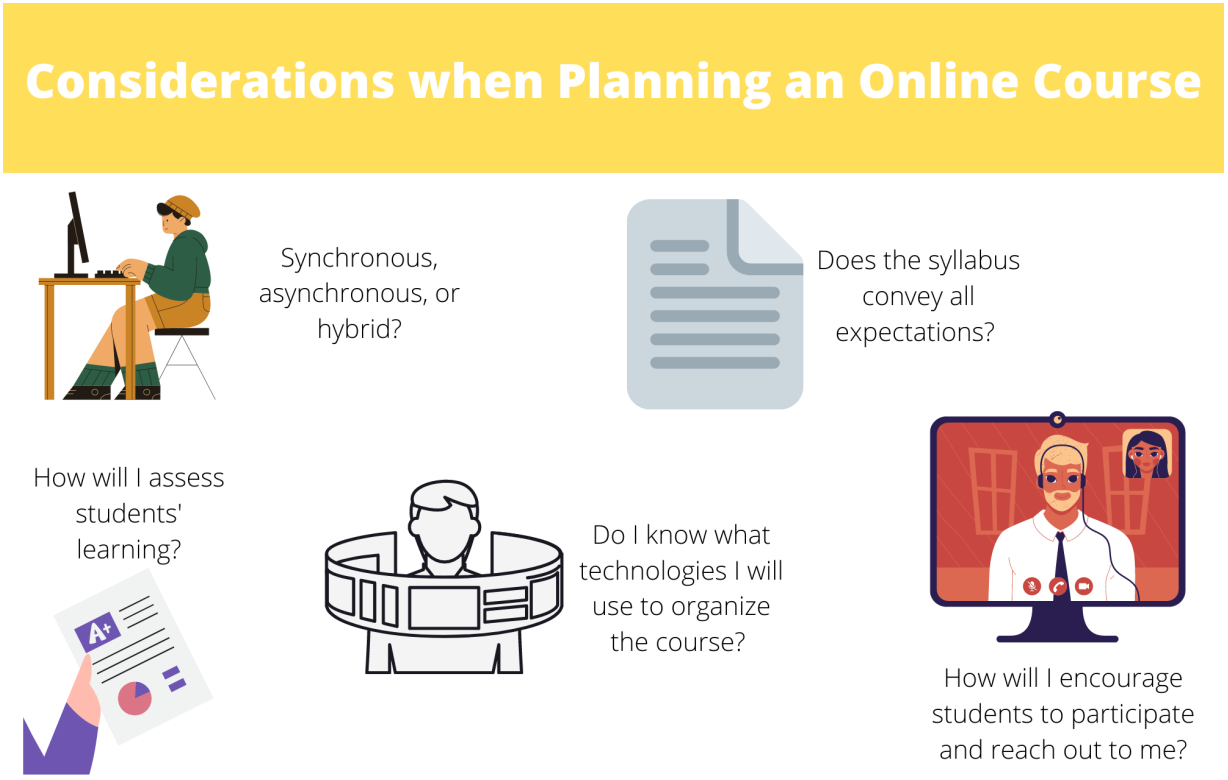

Figure 2. Factors to be considered when redesigning a Face-to-Face course into an online course

After carefully reading the course-level competencies, module-level outcomes and creating the activities, educators must include a comprehensive rubric for each activity. Having a rubric for each activity helps learners organize their thoughts before starting their assignments. Learners must read the rubrics before, during, and after attempting the assignment. If technology is implemented in the activities, educators should first explore the various applications included in their institution's LMS. The Canvas LMS provides video and voice recording applications for learners to use to submit assignments. Additionally, the Canvas Studio is a video platform that educators can create assignments, and learners can submit their responses right onto the Canvas Studio video. Moreover, learners can complete their assignments on Canvas Studio for their instructors to mark their work on the Canvas Studio video.

Classroom Interaction

Creating an online environment where learners' comfort level encourages participation among everyone can be a difficult task. One of the ways that educators can make learners feel comfortable in an online class is by making video assignments. If learners simply submit their work as a Word document or text entry, there is really no personal touch to the interaction among learners and educators.

One of the best methods to enhance classroom interaction in an online class is creating discussion boards where learners submit their typed answers and reply through video submissions. If the instructor and other learners can put a face to the words seen on the screen, the comfort level increases, and learners are more likely to produce better work as their written comments are now connected to a person/face. This somewhat mimics those interactions seen in a face-to-face class where everyone knows who is saying what. Another technique that will engage the more avid learners is synchronous chatting. The Canvas LMS provides a chat feature that can be used for synchronous discussions. Learners in an online class are geographically dispersed and have varying work and family schedules. An idea for implementing synchronous chatting is to have it weekly during different days and at different times each week. Although this might not still accommodate every learner, at least this optional engagement strategy is available to everyone who would like to expand their knowledge of the topics being studied.

Assessment, Rubrics, and Feedback

Assessing learners in an online course requires ingenuity to ensure that they are being evaluated adequately to show that they have acquired knowledge. In an online class, assessments can take the form of many formats: first, there is proctoring on-site at the learner's university. If the on-site assessment is not an option, there is the LockDown Browser – Respondus, SmarterProctoring, and Honorlock [8,9,10,11]. Instructors can monitor learners taking their exams from the comfort of their homes. When using Canvas, please be careful that since only one of the proctoring programs can be chosen—Canvas will not allow for an online test to be coded as on-site proctoring and Respondus. The third choice—synchronous online assessment—requires much planning on both sides, the instructor and the learners. The instructor sends out a calendar with various days and times slots for learners to sign up for the exam with synchronous online testing. It must be noted that because it is an online class, some of these slots must be in the very late evening and weekend as many learners do their online work during those days and times. In promoting the use of technology housed in the Canvas LMS, an option would be to have learners create a Canvas Studio video highlighting what they have learned; this is what Bloom's Revised Taxonomy calls "Create+Metacognitive" [7].

As with any assignment, assessments must also include a comprehensive rubric. A thorough rubric contains the title of the rubric, the description of the criterion, and the points assigned to each criterion. When creating rubrics for assignments and assessments, it is always best to add a box to include free-form comments for learners. Here, instructors provide feedback in the comments box for any points deducted from the assignment or assessment. Typically, learners do not read the comments that their instructors meticulously write in their assignment boxes.

For this reason, it is recommended to create feedback assignments approximately three times a semester. A feedback assignment is where learners return to a previously graded work, read the feedback, make corrections, and resubmit. When resubmitting their feedback assignments, learners must provide the comments left by the instructor in their work and explain what they did to correct their work. After the first feedback assignment, learners begin to pay closer attention to any feedback and reply to any comments left by the instructor.

Depending on the LMS that an institution uses, various applications within an LMS provide feedback to learners. Here are a couple of video links to tutorials on using Canvas courses:

Canvas Studio for Teachers [9]

Canvas Studio for Assignments and Providing Feedback [10]

Conclusion

In conclusion, the main objective of this paper is to review the essential aspects required to transform ground courses into online courses. Online teaching will expand traditional education to a new level to provide a profound learning experience. There are three significant elements involved in this transition: instructor, learners, and technology. Creating an engaging online course requires instructors to utilize innovative teaching techniques and the latest technologies to deliver high-quality instruction. Moreover, this also requires a responsible learner's mindset to deal with the challenges of the new format of online lectures, virtual discussions, assignments, and assessments.

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Javier Gerardo Gómez

Dr. Javier Gerardo Gómez is a Spanish and Japanese instructor at Mississippi Gulf Coast Community College (MGCCC) and the Instructional Designer (ID) for the School of Language Arts at the Jackson County Campus of MGCCC. Dr. Gómez is a veteran of the United States Army where he served from 1986 to 1989. After his service to the United States military, he attended Central Florida Community College and then the University of Florida where he received his Bachelor of Arts with Honors.

After three years teaching Spanish and French in a 7-12 school in Florida, Dr. Gómez returned to the Department of Defense (DoD) as a Spanish, ESL, and French high school teacher with the Department of Defense Education Activity (DoDEA). While in Japan, Dr. Gómez studied Japanese and was certified by the DoDEA as a Japanese teacher, and began teaching Japanese at Yokota Air Base High School. After fourteen years in Japan, Dr. Gómez returned to Mississippi to pursue his Ph.D. in Instructional Technology and Design (ITD) at The University of Southern Mississippi. His dissertation is titled "Virtual Communities of Practice for Non-Native K-12 Spanish Educators as Professional Development".

While at MGCCC, Dr. Gómez created and taught the first Japanese course for the college and the only one at an MS community college. Additionally, Dr. Gómez has been named Instructor of the Year for the Jackson County Campus (2016), and received the Moody Institute Fellow Award, which helped him return to Japan in the summer of 2017 to continue his studies of the Japanese language and culture.

Most recently, Dr. Gómez completed the seven Quality Matters (QM) workshops and received his Teaching Online Certificate (TOC) badge.

Umar Iqbal

Dr. Iqbal is an Assistant Clinical Professor at Electrical and Computer Engineering, Bagley College of Engineering, Mississippi State University. Dr. Iqbal's research design thinking, engineering education, and mobile multi-sensor systems. He has designed, updated, and taught several electrical engineering, engineering design, and technological innovations courses. Professor Iqbal worked in the areas of Multi-Sensor Integration, Navigation Systems, Wearable Technology, Robotics, and Control for industry and academia.

Before joining the Mississippi State University has also served at the University of Ottawa, Queen's University, and Royal Military College of Canada. He received the B.Sc. degree in electrical engineering from the University of Engineering and Technology, Lahore, Punjab, Pakistan, in 1993; the M.Sc. degree from the GIK Institute, Topi, KPK, Pakistan, in 2004; the M.Sc. degree from the Royal Military College (RMC) of Canada, Kingston, ON, Canada, in 2008; and the Ph.D. degree in electrical and computer engineering from Queen's University, Kingston, ON, in 2012.

He has received several prestigious awards, scholarships, and grants, which include a $1.48 million grant from the National Science Foundation (NSF) to improve graduation outcomes for transfer engineering students as Co-PI in 2021, the Industrial Research and Development Fellowship (IRDF) from Natural Sciences and Engineering Research Council of Canada

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Areejah Umar

Areejah Umar graduated from Mississippi State University with her Bachelor's of Science degree in Biological Sciences. Currently, she is working as a scribe in the Emergency Room at Baptist Memorial Hospital Golden Triangle. Her responsibilities include taking notes for medical providers and coordinating with staff members to improve clinical workflow by assisting in result tracking and records retrieval.

She is working on an online teaching techniques research project under Dr. Gómez, Mississippi Gulf Coast Community College (MGCCC), and Dr. Iqbal, Mississippi State University. This research examines crucial aspects of teaching to recommend best practices to design online courses and teaching strategies.

She is also a part-time research assistant job under the supervision of Dr. Noureldin in the Navigation and Instrumentation (NavINST) Research Lab. Her responsibilities include performing experiments, simulations, data analysis, and review articles related to lab work. The main focus of the research is navigation systems that utilize various sensors, data acquisition systems, and simulation software.

Muneebah Umar

Muneebah Umar is a freshman Biological Sciences major at Mississippi State University. She is a Presidential Scholar and recipient of the Ottilie Schillig Leadership Scholarship. Her research interests include innovative teaching technologies and methods. She has worked with Dr. Iqbal and Dr. Gomez in identifying methods educators can implement to make online courses effective and beneficial for students. In addition to this, she is a member of Dr. Amirtahà Taebi's lab at Mississippi State University. She is conducting research on noninvasive monitoring of heart activity using noninvasive measurements of heart-induced vibrations on the chest surface.