Overcoming Teaching Challenges in Online Media Production Courses: A Case Study of an Asynchronous Online Media Production Course

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***Abstract*—Traditional media production courses have heavily relied on in-person technical workshops, demanding a hands-on learning experience. Yet, due to the COVID-19 pandemic and a steady rise in online teaching and learning, higher education courses have shifted into online formats. This paper examines how online course design features impact student expectations, course learning objectives, and student performance outcomes. Using thematic analysis, we explore perceptions of graduate students in an asynchronous Graduate Media Production course from a mid-size university in the United States. Key course design components such as interactive video materials, interactive assessments, the use of graphics, leveraging the Learning Management System (LMS), and student perceptions of the course are analyzed. Challenges are addressed throughout, and the paper concludes with findings around the following four themes: engaging video materials, peer review and video assessments, personalized learning, and the ease of navigation within the course.**

***Keywords*—online media production course, online teaching, higher education, authoring tools, online course design, lecture videos**

I. Introduction

Since the 1980s, in education the use of "hands-on" learning has been the language of educational reformers seeking to improve educational outcomes [1]. While it has already been shown that hands-on learning was not sufficient by itself as it was supplanted by other educational reform terminology like "minds-on" and "inquiry based" [1], hands-on learning still holds a vivid expectation from a typical person as a type of learning that involves "doing"—being active in the learning rather than passive. Indeed, it is even our experience as teachers that students might even describe themselves as "hands-on" learners and will actively seek out classes they perceive as providing this type of learning experience.

Fast-forward to 2023, we are met with a different learning reality due to a significant historical event—the COVID-19 pandemic. The COVID-19 pandemic brought many changes that the education field had been slowly progressing towards, namely an increasing digitization of teaching and learning. During and after the COVID-19 pandemic, higher education institutions worldwide were suddenly faced with colossal decisions about how to continue their teaching and learning services. For most, this meant undergoing a rapid digital technology transformation in their offered courses [2]. This rapid transformation was fueled by an increasing demand for online courses among students, which then accelerated higher education transformations in course offerings [3]. This demand pushed many institutions to consider offering traditional in-person courses into online formats, courses that had previously never been offered online and some might have suggested could not be moved online because of necessary hands-on learning experiences.

There are many practical and technical challenges that present when shifting a face-to-face course into an online course, especially media production courses which typically heavily rely on face-to-face technical workshops. Nonetheless, to overcome these challenges, there have been a plethora of online tools and platforms available for faculty to use for designing practical and technical courses. Yet, as noted by Demeshkant *et al*. [4] the ability to use digital technologies does not equate to increased student learning. Rather, the digital competence of the instructor can play a significant role in the outcome of student learning with online instruction. Rapanta *et al*. [5] refer to this Competence as Pedagogical Content Knowledge (PCK) which include the knowledge to design, facilitate, and provide meaningful online learning experiences. Yet, there is a lack of research on transforming technical courses, such as a media production course, into a fully online modality. Technical courses present unique challenges for their delivery in fully online environments due to the nature of the course that typically heavily relies on in-person workshops, physical equipment, and field locations. Therefore, there is a need for research on the instructor's course design, learning activities, and assessments that can be delivered online but maintain, if not exceed, the in-person equivalency and integrity of the technical course. Specifically, this paper is significant because it examines a technical online course, which presents uniquely different challenges for online learning compared to non-technical courses.

In this paper, we share our process and critical reflection of designing an asynchronous online graduate media production course at a mid-sized university in the Midwest of the United States. Specifically, from an instructor lens, we examine how online course design features impact student expectations, course learning objectives, and student performance outcomes. By doing so, we aim to contribute to the research literature on designing online courses that fulfill requirements for technical, "hands-on" courses previously not offered online. We also aim to aid higher education faculty in the design of their courses and contribute to the further

digitization of higher education, showing what a typical face-to-face course can look like as an effective online course, especially one with a strong history of in-person technical workshops.

In what follows, we provide a background of the graduate level media production course followed by a discussion of course design elements, including some challenges that present in this typically face-to-face course. We continue with reflections on key course design components such as interactive video materials, interactive assessments, the use of graphics, leveraging the Learning Management System (LMS), student perceptions of the course, and conclude with best practice suggestions for online media production courses. Throughout, we include screenshots of course design features to illustrate key aspects that contributed to the course's effectiveness in an online format.

II. Media Production Course Background

The course of interest in this paper is a graduate level media production course offered to students who complete a Master of Arts in Communication as an elective course. While most students come into media production with a similar interest, their prior knowledge about media production varies. Therefore, this course is designed to offer topics with diverse stages of media production including pre-production, production, and post-production stages. In the first half of the semester, students learn basics of pre-production and screenwriting fundamentals. Then, they learn about basic visual storytelling techniques and composition techniques. Next, they move to a post-production stage where they learn audio editing (Adobe Audition) and video editing basics (Adobe Premiere). To summarize, the course is designed to give a general knowledge about the media production process without getting in depth to each of these three main elements.

The course curriculum is designed based on the revised Systems Model of Creativity which mainly focuses on how effective the practitioner internalizes their creative system [6] to find their unique approach. This system puts creativity in the center of the model and "provide[s] students with opportunities to gather deeper insights about their practice and how their creative agency is enabled and constrained by their interactions with the field and domains that make up the creative system that enable creative practice" [7]. While this approach to course design positions creativity at the forefront, it does present some challenges, as noted by Meany [8]:

1) Students undertaking technology-based courses and online courses tend to have 'penny-drop' moments of understanding that may not occur in time for an assessment event.
2) Students may not fully understand the assessment criteria until they see the quality of work produced by others in the class or until they receive specific feedback on their work.
3) These courses require students to develop their visual, written, and oral communication skills, and to be not only competent but also literate across a range of media forms.
4) The 'one attempt only' approach to assessment discourages students from taking creative leaps and academic risks [8].

We address the challenges listed by Meany [8] through intentional online course design elements and provide a discussion of these elements in the forthcoming sections. Additionally, the instructor for the online course of interest in this paper comes from a high level of digital technology knowledge and high self-efficacy in using digital technologies for teaching and learning purposes. These are important aspects to share as Swallow and Olofson [9] also state from their case study of seven teachers that to "understand the development of pedagogical and content knowledge with the integration of technology requires attention to teacher-level circumstances" [9]. Furthermore, Swallow and Olofson [9] assert a teacher who has a history of personally using technology tends to be more open to experimenting with technology in instruction and finding appropriate uses of technologies for student learning. We agree with this assertion and reiterate this important aspect of online teaching that emphasizes instructors as being pivotal in positively impacting the online learning experiences for students.

III. Online Media Production Course Design Elements

In the process of creating the online course design, we prioritized the importance of student-centered learning, especially considering students come from disparate media production entry points and knowledge backgrounds. Additionally, we explored ways to increase interaction between student to asynchronous content and student to teacher. In the Systems Model of Creativity, student-teacher interaction is primarily focused on during assessments due to positioning the teacher as an expert in the field who has industry level experience and knowledge that can be beneficial to students' creative journey [8]. Hence, a major assignment where student-teacher interaction could be possible was created within each module, with a total of nine modules focusing on a specific aspect of the media production process. Additionally, because the aim was to leverage students' creativity in the course, personalization options were available to students, allowing ownership of the learning experience and possibilities to grow students' creative skills. These options are primarily focused on media field production, audio production, or post-production. In this way, we aimed to have the overall course design push students to experiment with different media production types for the entire semester and at the end of the process, students could find their unique creative interest and apply it through the options to create a major final project.

Although the online course design elements were intentionally designed to leverage personalization and experimentation, the online format does present some challenges. A main challenge in an online media production course is access to technology and equipment. It can be challenging for higher education institutions to provide enough equipment to students and even when equipment numbers are sufficient, there can be a burden on faculty to monitor and supervise checked out equipment. To circumvent potential pitfalls with access to technology and administrative burdens, we provided students with an option to either subscribe to Adobe Creative Cloud on their personal

computers or access it via the university's media lab. We also provided students with access to sound studio and some video production equipment. However, we consciously designed assignment requirements in a way so that they did not heavily rely on equipment but instead focused on story and creative ways to tell stories. In other words, assignments could be done using smartphones and simple production gadgets that students may already have access to without needing to go through the university system. Yet, it is important to underline that this aspect might not be feasible for advanced production courses in which learning objectives also includes learning how to operate cinema level media production gears.

After designing the curriculum and critically evaluating the course's overall design elements, we chose technology and educational tools, such as interactive video materials, to improve student's overall learning experience.

A. Interactive Video Materials

Effective traditional media production courses employ constructivist pedagogy where the course is designed to elicit prior knowledge, use feedback effectively to create cognitive dissonance in which students learn and analyze prior work to understand multiple approaches to storytelling through media [10]. In this process, students bring diverse prior knowledge, create engagement one-on-one with the instructor to learn media production techniques, and then apply them with project-based learning. However, transforming such courses into an asynchronous online modality presents a significant challenge for how to enhance students' unique prior knowledge and create engagement in one-way communication through lecture videos. Contributing to this challenge is a low tolerance of students' attention spans for long lecture videos. However, the interactivity component in video lectures has been shown to increase students' attention spans towards longer lecture videos [11]. Consequently, to mitigate this challenge of low attention spans for longer lecture videos in the online format, we focused on ways to increase engagement in our course lecture videos and leverage the use of branching scenarios to give students personalized learning paths. For example, to enhance the engagement in lecture videos, we increased the pacing of videos and used annotations to create dynamic non-traditional lecture videos. Annotations in lecture videos have been shown to increase self-efficacy in student learning [12]. We aimed to achieve such an effect by using video annotations and interactive knowledge checks. After recording lecture videos, we used Camtasia and Adobe Premiere to edit our lecture videos. In the first run, we looked at ways to increase pacing of the videos by trimming out silences, unnecessary stops, or any other elements that we think dropped the tempo of the lectures. In the second run, we added digital annotations to videos including highlighting points and elements on presentations, and we used digital shapes and texts to underline lecture points made in the presentation (Fig. 1). In the last run, we exported edited and annotated videos and uploaded them to third party applications to create interactivity by creating knowledge checks on the video.

Additionally, we focused on trying to overcome challenges towards creating student centered learning experiences and students' various prior knowledge on media production. We selected specific modules in the course where technical topics such as audio editing and video editing were covered, and we started from beginner level to intermediate-advanced level. We found that some students have prior experience in audio-video editing software while others come into class without any prior experience. In situations like this, we aimed to not discourage the motivation of students who have prior knowledge by forcing them to go through basics of Adobe Premiere and Audition. At the same time, we also aimed to not overwhelm students who do not have any prior knowledge and need to understand the basics first. Therefore, we decided to use branching scenarios on lecture videos where students could create their own learning path by deciding which video lectures to watch. In the first step of this process, we created several lecture videos on the basics of Adobe Premiere like for color correction and video effects. In the second step, we created pathways using Klynt to create interactive videos enhanced with branching scenarios. In this type of interactive video, students were asked questions regarding their knowledge about the content and based on their answers, the platform branches out and shows them a video that covers the specific component of covered media post-production software (Fig. 2).

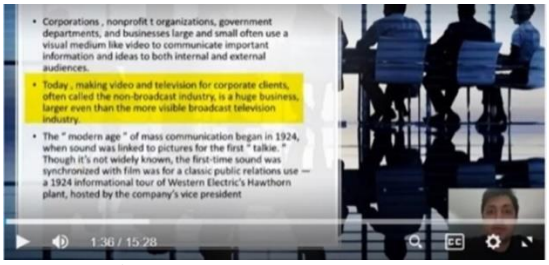

Fig. 1. Screenshot of dynamic video annotations added to lecture videos after they are recorded.

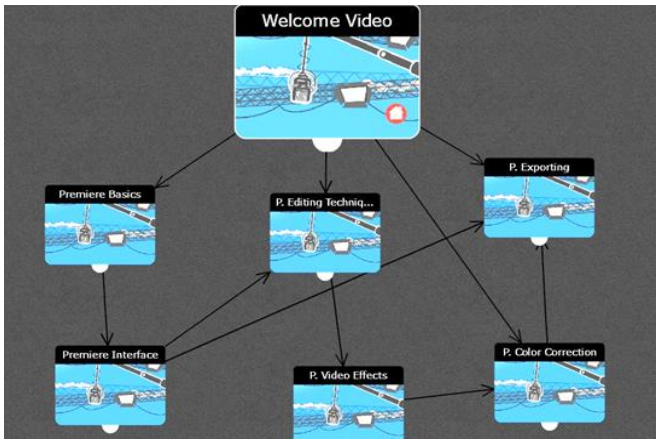

Fig. 2. Illustration of platform branches in an interactive lecture video using Klynt.

B. Interactive Assessments

In traditional media production courses, summative assessments play a critical role to not just evaluate student's learning but also to give them a hands-on learning experience opportunity. Consequently, media production courses generally have a larger summative assignment which requires students to produce or edit audiovisual material. For instance, in editing assignments, the instructor provides students with video materials and asks them to create a cohesive piece by editing materials. There are lab hours in these courses where

the instructor works with students one-on-one to help them edit projects, and the instructor encourages students to find their own unique ways of telling stories.

Having such a component in an online asynchronous environment can be challenging because of the self-paced nature of the learning environment. To overcome this, we created optional lab hours and one-on-one sessions with students. In these sessions, we used Zoom meetings and employed features like screen share, annotations, and controlled other users' computer features. In these sessions, students joined scheduled meeting times and started editing their projects simultaneously. When a student needed help or wanted to show their editing work, the instructor scheduled a one-on-one session in a breakout room and provided instructions through a shared screen and annotations. If needed, the instructor can also control the student's computer through Zoom to show a technique virtually. In this sense, we tried to imitate a face-to-face component in an online environment. Moreover, an important component in formative assessments is to evaluate whether students can identify and use media production techniques and improve their technical media analysis skills. In a traditional classroom environment, this component is provided via class film/video screenings and open discussions followed by formative assessments such as with an essay or quiz. However, creating such engagements is a challenge in an asynchronous course. Therefore, the main elements in the course were designed to overcome such a challenge and still increase engagement. To explain, first, sample works were provided as asynchronous materials where students were asked to watch and then answer prompts in the form of a discussion. Flip was used, a video discussion platform, for some topics as well as a traditional text-based discussion board in our Sakai based LMS system. Second, video quiz components were created for formative assessments. For these assessments, Sakai based interactive video tools were used in the LMS in addition to H5P interactive video features and YouTube as a source for film clips. In these quizzes, students were asked to carefully watch a provided film and answer pop-up questions. For example, in video quiz 1 in Fig. 3, students were tasked with watching a scene from a film. In the film viewing, pop-up question types included open ended and structured multiple-choice questions. These questions asked about the composition technique used in the specific shot where the video stops, expecting students to give their opinion of the overall sound design of the scene or screenwriting techniques such as identifying story structure in the scene.

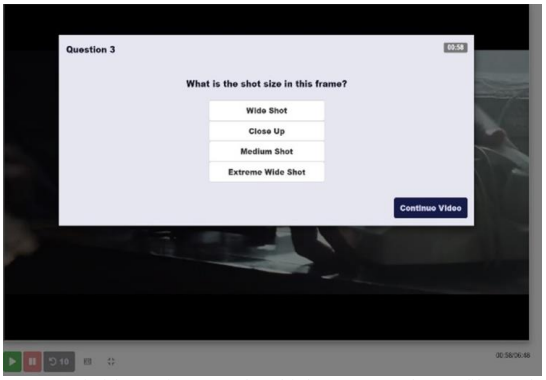

Fig. 3. Image of video quiz example which assess students' film techniques and analysis skills.

Lastly, peer reviews are another important component of media production courses where students can critique their peers' work and get inspired or give inspiration to others. Peer reviews are a commonly used technique in any multimedia production to improve the overall quality of the media products [13], but video-based peer review activities are especially effective learning tools for students [14]. Accordingly, in the course design, two main tools were used to enhance the peer review process: Padlet and Wipster. For editing projects, a Padlet interactive board was created, and it shared all students' editing projects with the entire classroom. For these projects, students were asked to tour each of these entries and provide feedback in the form of a general comment under each entry. For other video projects, we used Wipster to allow students to give feedback directly on the timeline of the video. For instance, a student could write a comment for a specific moment in the video, and it would show on the right side of the screen while playing the video. By using these tools, students could give more specific feedback rather than just giving general opinions about their peer's work (see Fig. 4).

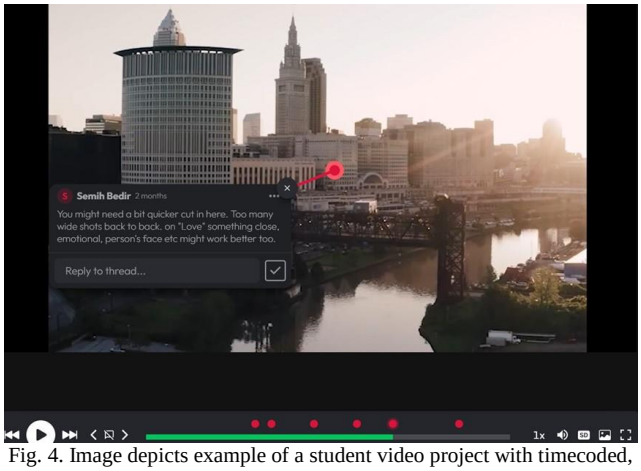

Fig. 4. Image depicts example of a student video project with timecoded, specific feedback using video review platform Wipster.

C. Visual Design of LMS Course

In addition to students' creativity, student engagement was prioritized in the overall online course design. Thus, E-Learning Engagement Design (ELED) was used as a foundational approach. ELED underlines 4 main components in course design principles: (1) Defining instructional needs, (2) Defining instructional objectives, (3) Creating learning environments accordingly and (4) Creating summative assessments [15]. Based on these principles, an in-depth learner analysis at the beginning of the course was conducted by using various survey tools and student self-reflections. Then, course instructional goals and professional standards were identified that students needed to learn by the end of the course. From these goals and standards, learning environments and summative assessments were created. Throughout this process, an important aspect was selecting relevant media resources to be used in the overall course design.

Moreover, studies have shown that visually appealing course layouts and intuitive navigation in online course designs improve the online learning experience for students

[16–20]. We aimed to create a course layout that was visually appealing, easy to navigate and interesting. Thus, three main multimedia components for the online course design materialized:

1) A visually appealing screen layout with an effective use of graphics and images.
2) The use of appealing, branded-video intro and outros.
3) Easy and logical navigation within the course, executed by providing multiple ways to access information.

To create a visually appealing course design, graphics and picture banners were created for each main component/page of the course (e.g., the Home Page, Modules Main Page, Video Quiz Page, and Each Module Page). We incorporated pictures, graphics, and Gifs to create more visually appealing page designs rather than simply providing text-based pages (Fig. 5).

Fig. 5. Image of multimedia assets used to enhance the visual appeal of the course page.

Furthermore, to create easy navigation, we provided multiple ways to reach the content. For instance, one way was to click on Short Cuts on the home page. To make these buttons visually appealing, we created logo style buttons for each page shortcut (Fig. 6). We also branded lecture videos by creating a motion graphics-based intro for the course. Lastly, to ensure easy navigation and clarity in the course, we created an orientation module where students watched a welcome video, went through the syllabus and schedule, and more importantly, students watched a video that showed them how to navigate within the course. Lastly, for each module, we provided weekly tasks and check boxes where students could check a box for each module task completed. By creating such checkboxes, students could not only understand what tasks were required of them in the specific module, but they could also follow their own progress of completing the module, mentally allowing them to take note of their completion pace.

Fig. 6. Image examples of animated, designed buttons created for students to reach course content.

D. One-on-One Support

While we prioritized increasing learner engagement by providing students with necessary technological tools to help them interact with course content; students still need one-on-one support from instructors to receive more in-depth explanations [21]. Therefore, a component in the course was created to give students options to have one-on-one synchronous online or office/lab hour meetings with the instructor. We found this aspect especially beneficial if students were mostly campus students. We found that students thoroughly enjoyed the online component of the course, but they preferred the option to have one-on-one contact with the instructor, particularly when the course covered very technical topics in media production.

We also integrated the Google calendar reservation system into the LMS to provide easy access to students where students only saw the embedded Google calendar reservation system in their LMS. In this way, students could book a meeting slot time, select whether they preferred to meet online or face-to-face with a couple of clicks, all without needing to send an email or leave the LMS page.

IV. Student Perceptions of the Course Design

While the aim of this paper was to provide an instructor's lens of designing a fully online technical course that has traditionally always been in-person, student perceptions were collected to see if the aims of the course design and strategies used to transmit a traditionally face-to-face course to online environments had a positive impact on students.

Therefore, at the end of the course, we interviewed students to understand their perceptions of the course design. A total of 10 students were interviewed and asked structured questions to understand:

1) What are students' perceptions on video assets in the course?
2) Do students find course materials engaging?
3) What are students' perceptions of video-based assessments?
4) Do online course design features help students overcome challenges with learning content in a technical course in an online format?

After interviewing students with structured questions, we coded students' responses and applied thematic analysis to explore common themes among students, which we now describe.

A. Engaging Video Materials

Nine out of ten students specifically pointed out they found lecture videos and other videos that were created for the course to be professionally created. They mentioned the videos were engaging and dynamic, and it helped them learn the content. Furthermore, some students pointed out that technical videos where the instructor covers how to operate editing software were especially helpful for students because they could revisit the videos anytime, especially if they needed a refresher. One student mentioned that "I really enjoyed lecture videos; I am really impressed by the number of opportunities for interactive learning in these materials."

While some students' responses might be about advantages

of using asynchronous videos, the fact that they revisited materials and watched the entire videos can be a result of high engagement with the materials, and it showed students had a relatively high attention span to watch the videos.

B. Peer Review and Video Assessment

Most students in the interviews pointed out that peer reviews of the projects in the course helped their learning drastically. Students pointed out that in production courses, they wished to see other students' work because it helped them to better understand content and see different approaches to storytelling. One student pointed out that "I really liked the peer reviews. It helped me see other ways of approaching the same project and gave me more feedback for how to better my own projects." In other words, the use of online discussion boards, being able to access other student projects, and using technological tools that allow students to have peer review and constant group communication with peers all had a positive impact on their perception as well as engagement with the course materials.

Additionally, students pointed out that video-based assessments helped them learn the materials. While students found video quizzes stressful due to watching something and waiting for pop-up questions, they also pointed out that these types of assessments helped them learn while checking their own knowledge. One student indicated that "I think video quizzes were great. It made me pay close attention to films I am watching and focus more on the technical parts of filmmaking." Most students pointed out that interactive video assessments helped them to learn how to analyze film materials, increase their focus to video elements, and created excitement due to the trivia nature of the engagement. This is an important component of classical face-to-face media production courses, where students have live discussions and engagement with peers on analyzing films and other media products. In this sense, video assessments in an online format serves similar objectives but also provides a more in-depth assessment tool to understand whether students can identify, analyze, and make sense of media production decisions that professionals make in their media products.

C. Personalized Learning

When we asked students about their satisfaction of the course materials, most students pointed out that the quality of the video materials was high and that the lecture videos helped them learn about editing software in the course. Yet, our analysis showed students were not aware of the branching scenario feature used in the editing lecture videos. Instead, students assumed what they selected was what everyone else was selecting. Nonetheless, students commonly found the personalized learning aspect of the lecture videos helped them learn materials, and they found that this aspect of course lecture videos kept them engaged more with course materials. One student pointed out that "The freedom we had in course materials and projects really helped me to overcome challenges to learn production topics which I didn't have prior knowledge of." The student population in the course had diverse experiences regarding the media production area. Yet, most students indicated that they had increased their knowledge about the topic without being intimidated by the technical aspect of the course. Students underlined the personalized learning component of the materials, such as the use of branching scenarios in lecture videos, and how this feature of the course assisted their learning and increased their engagement with the content.

D. Ease of Navigation

Students had mixed opinions about how easy it was to find materials in the course. While most students pointed out that they really enjoyed how professionally designed the course materials were, including the digital use of the course syllabus and schedule; some students pointed out these design elements sometimes created confusion and made it harder to find some elements. Students pointed out that checked boxes in each module worked perfectly for their learning but having multiple access points to pages sometimes created confusion. Some students specifically pointed out that they wished to have a classical design in course materials. It was not clear in our findings whether this perception was due to the content of the materials or specific design elements such as the interactive course buttons in the LMS system that caused confusion.

V. Conclusion

In this study, we provided our experience of transforming a traditionally face-to-face media production course at a Midwestern University in the United States to an online asynchronous course format. We shared our strategies and methods to increase student engagement and overcome challenges of teaching a hands-on experience course in an online format. We used this course as a case study to provide a pedagogical approach on teaching technical courses online, and we conducted structured interviews with students who took the course by using qualitative research methods.

Teaching technical, hands-on experience courses such as media production courses in an online environment brings its own challenges. First, traditional media production courses heavily rely on engagement, students' prior knowledge, and learning from the process of creating. In our online graduate level media production class, we tried to overcome such challenges by using educational tools to increase engagement and provide students with opportunities to create their self-learning journey in the duration of the course. In our exploration, we found that tools such as video annotations, digital boards, and interactive videos helped students engage more with course materials and helped them better understand technical topics. We strongly suggest the use of branching scenarios for course lecture videos, especially if students have different prior knowledge about the technical course topic. In our findings, students specifically underlined positive perceptions of individualized learning components in the course design.

Second, in our course, we created uniquely designed menu buttons, intro and outro videos for the lecture videos, and banners in the entire course menu items. In our research on students' perceptions, we found that students were impressed with the course materials itself—they found it inspiring. Yet, we also found that an increase in non-traditional materials might create confusion for students. Students might expect more traditional course materials, which they might be more

familiar with from other courses. Third, while we focused on how to transform a media production course to an asynchronous online course, we also realized that there should still be a possibility for students to engage synchronously because topics covered in the course might require further explanations, and teacher to student one-on-one engagement plays an important role. When we questioned students about their perceptions, students still pointed out that having synchronous engagement with the instructor was needed for them to better understand technical aspects of the course.

Lastly, in our exploration of students who took this course, we found that our aims in the course design elements of using interactive video tools, branching scenarios, and adding annotations and animations to asynchronous course videos had a positive perception on students regarding their engagement with materials, and students liked being able to choose which course materials to review based on their prior knowledge about course topics. Furthermore, we found that our assessment strategies and choice of technological tools helped students to learn materials, contributed to their understanding of how to analyze media products, and inspired students to create group communication in the course despite the online environment. Yet, we also would like to caution that while students found the use of animated graphics in the course positive and facilitated their ease of navigation for course materials, some students still preferred their "classical" course experience which is not heavy on visually engaging materials.

In this study, we shared our pedagogical approach to transforming a traditional face-to-face media production course to an online asynchronous modality. We also shared students' perceptions of the course elements. Therefore, it was limited in scope and only shares this specific case. However, future research on conducting an experiment where multiple sections of the course are taught could help more definitively state specific course elements that enhance student learning experiences for online technical courses.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Semih Bedir conducted the research, analyzed the data, and contributed to the writing of the paper. Mariah Hagadone-Bedir analyzed the data and contributed to writing the paper. Both authors approved the final version.

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