Using Video Conferencing and Media Management Tools in Support of Synchronous and Asynchronous Teaching and Learning

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Abstract

The use of multimedia content in education today takes various forms in the learning environment. Technology integration should be seamless, accessible, and usable to ensure a safe and convenient user experience. When learning content is only available on one device or system, it may generate another challenge. It is important for users to be able to easily share multimedia content between e-learning tools, media storage, and learning management systems to facilitate creative educational video usage. The media integration helps make seamless media adoption and usage possibilities. This emerging technology showcase demonstrates how video content is enhanced for online teaching and learning experiences based on synchronous and asynchronous conditions, allowing users to access their video content across systems. The technology-integrated environment, educational media management, and how teachers and students can utilize them to teach and learn content from evidence-based practices were further discussed.

Keywords: video conferencing, media management, technology integration, synchronous, asynchronous

Background

We are embracing and experiencing numerous new emerging technologies. These technologies make our lives more convenient and beneficial in various ways. However, it should not be overlooked that technology needs to be adopted with caution at times (Higgins et al., 2012; Williams, 2011). New technologies must meet standards for safe and suitable environments. The priority should be given to building a system that protects users (Amo et al., 2020; Huang et al., 2019; Pardo & Siemens, 2014; Romiszowski, 2004). When unforeseen errors occur in places such as security, safety, and accessibility, they could infringe on human rights (Klang & Murray, 2016; Sieber, 2019). One representative example is the use of technology in education. The use of new technologies in a safe, educational environment may present another challenge (Bricken 1991; Liu & Huang, 2005; Tsai & Chai, 2012; Wu et al., 2013). Building a secure, balancing, and integrated technology environment is essential to support the ease of use for teaching and learning, especially as the video content in education increases. The purpose of the showcase is to present one solution to this challenge.
Purpose of the Showcase

Technology integration must be seamless, accessible, and usable to ensure a secure and convenient user experience. To use video content effectively, users must be able to easily share multimedia content between e-learning tools, media storage, and learning management systems. An integrated multimedia ecosystem helps create seamless media adoption and usability (Kidanu, 2015 et al.). The emerging technology showcase demonstrates how video content can be enhanced for online teaching and learning experiences based on real-time conditions, allowing users to access video content across systems.

Evidence-Based Practices

Multimedia Principle

According to Multimedia Principles (Mayer, 2001), presenting words and pictures are more preferable to learning than words only. This principle has been supported by various empirical studies that learners perform better when information is presented in both, rather than one method. This principle provides a foundation for using multimedia and it is necessary to properly use multimedia for deeper learning.

Technology Integration Model

Technology integration is a theoretical model designed to help students think about technology integration in ways in educational settings. The SAMR model can help educators think about the role of technology in supporting learning. The SAMR model includes substitution, augmentation, modification, and redefinition. When using technology, we often focus on the first two levels (i.e., substitution and augmentation); however, technology integration has moved to the last two levels (i.e., modification and redefinition). With those targeted levels, learning can be supported, enabling activities that were previously impossible in the classroom. Through technology integration, learning can be enhanced.

Emerging Multimedia Technology

This emerging technology showcases how media content is optimized for online teaching and learning based on real-time conditions, using video conferencing and media management tools. The demonstration allows teachers and students to transfer a synchronous or asynchronous video across media content and learning management systems. Practical implications were further discussed for educators who are interested in using video in their classrooms.

Video Conferencing

Video conferencing tools give students, faculty, and staff the opportunity to host, and record meetings as well as store them in the cloud. Zoom has been commonly used as a video conferencing tool. Users can also use it with additional features such as small groups, whiteboards, screencasts, and sharing. Zoom is used for creating synchronous and asynchronous videos so that users can create and access videos in real-time or at any time.
Media Management

Media management tools support all video experiences for online teaching and learning. Users can add, edit, and manage their video content. Kaltura is one of the popular cloud-based media management tools. My Media is a personal media repository where users can create and store video content. Also, in the cloud, they can edit, manage, and publish videos. It is easily shareable with others and publishable to either a media portal, online course, or external website. The tool supports enrichment functions such as screencast, auto-captioning, interaction, learner control, assessment, analytics, and collaboration.

Integration of video conferencing and media management

The integration of video conferencing and media management allows students, faculty, and staff to create and manage their video content efficiently. For example, after a meeting ends a video recording is added to the Zoom cloud, and then automatically transferred to the Kaltura media cloud. The cloud recordings are available across the Zoom cloud, Kaltura cloud, and learning management system, enabling users to easily access, manage, and share with other users. In addition to the recordings, its transcription files and chat transcripts are sent to the Kaltura cloud and attached to their recordings.

In particular, the integration can be utilized in hybrid classrooms beyond the usage scope of online courses. In a hybrid classroom, instructors can use Zoom to record real-time sessions and utilize recorded content afterwards in video management and learning management systems. Figure 1 illustrates the flow in a technology-integrated multimedia environment where the three phases (i.e., pre-production, production, and post-production) are not separated and can operate as connected elements. Various types of hybrid courses can be made feasible by this integrated environment.

Figure 1

*Integrated flow in a hybrid classroom with video conferencing and media management technology*
Discussion and Implications

This emerging technology showcase demonstrates how video content may be enhanced for creating a safe, engaging, and flexible learning experience based on synchronous and asynchronous conditions.

Students, faculty, and staff can minimize edit and upload times and technical errors. The integration makes it easier and quicker to create and access video content. Virtual meetings can be recorded directly to a media cloud hosting service. This not only allows users to secure their video content but also avoid using their own storage capacity and internet bandwidth. Zoom-Kaltura integration allows all users to easily access Cloud recordings across the web portal (e.g., MediaSpace) and learning management system. Sharing and reusing video recordings is significantly more convenient and faster in this unified environment. Kaltura video management tool provides easy editing, captioning, and adding quizzes, as well as monitoring and analyzing video usage. With easy video creation and editing, users can also produce and publish their final video product in a variety of ways. They can present it to classes within the learning management system, and extend access to both internal and external audiences. It enables users to share and control their videos from anywhere via the embed code.

In short, the integration has the following practical benefits: (a) extended storage availability and data footprint, (b) enhanced accessibility, (c) robust media management capability, and (d) easier video editing and sharing. When integrating technologies, some considerations may be useful: (a) technological and pedagogical approach, (b) faculty professional development, (c) showcase at multiple formats, (d) partnering with various stakeholders, (e) actionable timelines, and (f) one-on-one support and scaffolded resources.

References


