

Development and Implementation of a Multi-Modal Multi-Campus Synchronous Teaching Secondary Teaching Methods Courses

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Abstract

Developing and implementing a Multi-Modal Multi-Campus Synchronous Teaching Secondary Science Teaching Methods Course at Indiana University Southeast involves creating a course that leverages multiple modes of delivery (e.g., online, face-to-face, hybrid) across different campuses in real-time. This approach aims to provide flexible, accessible, and equitable learning opportunities for students studying secondary teaching methods. By implementing Multi-Modal education teaching, Indiana University Southeast will provide a comprehensive, flexible, and innovative learning experience that meets the diverse needs of its students while preparing future educators to effectively teach in a variety of settings.

Keywords: Multi-Modal, Indiana University, innovative learning, USA, future educators

Introduction

The multi-modal classroom concept at Indiana University was first developed in 2020 to address the need for low-enrollment courses across several campuses in the Indiana University system. Many required courses lack faculty and enrollment to support courses offered at each campus. Indiana University is a public university with eight campuses in the state, all several hours apart. Prior experience to staff such courses was asynchronous online instruction in a static mode with interaction between learners and the teacher.

The first attempt at remote or distance learning was characterized by the mail service correspondence class, however, it was slow and lacked inaction between the learners. Television and radio broadcasting courses also tried to educate the people

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but again it lacked the classroom interaction of learning. Not until the introduction of the personal computer and the application of the internet and social media did education become interactive. Interactive learning through two-way broadcasting with interactive cameras, and video streaming created the opportunity for learners and educators to interact. The real paradigm of teaching and learning occurred with the severity and widespread COVID-19 pandemic. This pandemic closed down societies like never witnessed since 1918. The pandemic forced universities to reexamine how teaching can be taken to students globally. The shift to online learning created apprehension among academics throughout education at all levels. This new pedagogy threatens the entire paradigm of how learning and teaching have always been carried out for thousands of years creating many myths and false ideas about online teaching (McFarlane, D. A., 2011; Hollenbeck, J. and Assim, S. 2021).

Discussion

Before 2020, traditional instruction (K-12) was within conventional classroom walls, and lab spaces, with in-person face-to-face interactions (Hollenbeck, 2021). After the COVID-19 pandemic emerged in spring 2020, schools shifted their teaching models quite rapidly. There were three major ways instruction took place during the Spring 2020 and the 2020-2021 school year: 1) online learning; 2) hybrid (combining in-class and out-of-class experiences); or 3) face-to-face with social distancing. The education community defines online learning (also known as E-learning) as students working online at home while the teacher assigns work and checks in digitally (National Science Teaching Association (NSTA) 2016; Hollenbeck, 2021; Sekulich, 2020; Stauffer 2020; Trust & Whalen, 2020). Some educators, as in online universities or alternative schools, had already been teaching online before the pandemic arose. These teachers proved to have the easiest time transitioning and, as experts, were best equipped to help others with their transition (Barbour, 2014). Some online courses were static, the electronic courses were reminiscent of a correspondence course: readings were posted, written discussion threads, and assignments to be independently completed.

The paradigm for teaching will never be the same again. The first choice of teaching at the onset of COVID-19 was delivery models were asynchronous, static models with limited student-teacher interaction or a synchronous model with active classroom-like interaction. The concept of taking classroom-based learning to online learning has created apprehension among academics throughout education at all levels.

Asynchronous Teaching Defined

Asynchronous learning is described as an online space where work is supported with digital platforms in such a way that participants are not required to be online simultaneously, Hrastinski, S. (2008). Instruction is accomplished by threaded discussions, e-mail, and online message boards for student interaction, Leibien, E. 2000. Asynchronous learning has advantages. Asynchronous learning provides the learner more time to generate content-related responses to the instructor and peer postings, and one can learn at their schedule, Hrastinski, S. (2008). Asynchronous learning is viewed as less social and can cause the learner to feel isolated, (Hollenbeck, J. 2021, Hollenbeck, J. and Assim, S. (2021). With the advent of the computer, the World Wide Web, and the development of learning platforms such as web conferencing or video chat, learners can participate in a real-time classroom to achieve a greater understanding of content bridging them together over distances and time zones, (Lieblein, E. (2000)., Stewart, A. R., Harlow, D. B., & DeBacco, K. (2011), Hollenbeck, J. and Assim, S. (2021).

Synchronous Teaching Defined

The synchronous learning environment most closely resembles the traditional face-to-face classroom with direct interaction. Learning takes place through digital platforms where the teacher and learners are utilizing online media at the same time. When compared to asynchronous learning, synchronous online environments provide a greater sense of feeling supported, as the exchange of text or voice is immediate and feels more like a conversation. These learning platforms such as web conferencing or video chat are used, and learners can participate in a real-time classroom to achieve a greater understanding of content, (Lieblein, E., 2000; Stewart, A. R., Harlow, D. B., & DeBacco, K., 2011; Hollenbeck, J. and Assim, S.,2021). Synchronous learning requires dedicated use of interactive tools such as Zoom or Microsoft Teams to facilitate synchronous classes and discussions. At Indiana University Southeast (IUS) we used the learning platform, Canvas, available throughout Indiana University to distribute materials, assignments, and assessments, as well as foster asynchronous discussions and collaboration.

Implementation

To address issues of hesitation and reluctance to use the online system, learning support must be available for teachers and students alike. With coaching on

planning online delivery and experiencing teaching online, and the support of dedicated web designers, a new understanding of delivery methods and discussed how much learning took place in their online courses, (National Research Council, Board on Science Education, National Committee on Science Education Standards, & Assessment, 1995; Sekulich, K. M., 2020; Hollenbeck, J., 2021). To assure quality control of the system and student success in learning systems there is a system for continuous feedback from students to improve course delivery and content dynamically. We use a combination of formative and summative assessments to evaluate student understanding and provide timely feedback. Students were surveyed for their opinions and feedback was encouraged to improve the learning. Robust technical support is available to faculty and students to address any issues related to connectivity, software use, or digital resources. It was recognized that for successful online learning, the emphasis must be on inquiry, and problem-based learning with discovery and application of knowledge, students need to be engaged in the instruction (Loucks-Horsley, S., Stiles, K., & Hewson, P., 1996; Lieblein, 2000.; Cox, R.D., 2005; Hollenbeck, 2021).

For successful online teaching, utilize technology to deliver live lectures and interactive sessions simultaneously across multiple campuses, ensuring that all students receive the same instruction regardless of location. Teachers need to practice and master the discussion and communications tools in the online learning environment and know how to use those tools embedded in the technology available that will reach all learners. Encourage active learning. Communicate learning expectations to students. Keep the activities, and assignments relevant to all students. The online resources must be linked to the course, and appropriate assessment tools must be used. The course design should include clearly stated expectations about how long assignments may take to complete, the sequencing of assignments or modules, and a calendar or automated reminders about due dates. (Hollenbeck, 2021). Make use of breakout rooms for group discussions, and show students how to share screens for presentations. Encourage online and offline chat functions to promote communications, (Miller, 2008; Hollenbeck, 2021).

Teaching across the region to other sites allows for collaborations and an exchange of ideas previously unavailable to our students. This teaching modality formed a sense of community among students across different campuses through group projects, peer reviews, and collaborative learning activities. Furthermore, teaching online gives your students immediate access to the internet to enhance their learning and allows students from other locations to work together.

Preparation for interactive synchronous teaching requires more time and logistics before teaching. Anticipate questions and prepare questions for your students. Be comfortable with being on screen, and have a dedicated place to teach from.

I require cameras to be on during class between all participants. Cameras must be on so we can see visual cues and non-verbal language as they are important in communication. The cameras address equity issues for second-language learners and hearing-impaired individuals. To reduce anxiety for participants, instruct them to change their screen backgrounds and set up virtual “rooms” for privacy. Check your background and plan what you are wearing. Clothing with stripes and patterns often does not look good on camera. Finally, it is an easy way to take attendance.

The multi-modal teaching model can successfully address staffing shortages, without compromising quality and reputation. It holds the potential to promote professional opportunity and advancement that would be more difficult on smaller campuses. The Multi-Modal Classroom can maintain existing programs, and use talents and resources to promote intercampus cooperation to build a stronger program. Multi-modal education provides quality education opportunities to students regardless of geography.

Evaluation and Iteration

Student support is also just as important in the development of online learning environments. Protocols for all educators no matter the discipline they teach should be communicating with parents and not assigning work to students that does not enhance their learning. Some educators in our study suggest not assigning —busy work, making all learning meaningful, maintaining open communications with home, and having established times that parents can reach you within established boundaries. Based on research from the surveys, anecdotal information from teachers, and research, online learning for some students is more difficult than being in a structured classroom (Kamenetz, 2020; Sekulich, 2020). For example, a procrastinator and student with poor self-discipline will have problems completing homework on time. The traditional classroom provides structure and rules of decorum gained and reinforced consistently. The online environment is not as structured and demands self-discipline that many students have not developed. Teachers in the survey reported that learners who are motivated and overachievers tend to do better, (Hollenbeck, J. and Assim, S, 2021).

Teachers shared that they observed that their online courses provided social role-modeling of appropriate online behavior- netiquette- and assisted students in becoming better students because some students found that online learning was less distracting. During learning experiences, instructors guide the students' learning to understand scientific concepts but also bring in several other non-content-specific aspects to teaching science such as roles and responsibilities in a classroom context. Additionally, teachers still need to facilitate inquiry-based lessons by asking probing questions to the students about their responses, having them summarize main themes, and linking them to activities and assignments similar to a traditional guide-by-the-side in the classroom who may probe further about readings, written responses, and independent and group projects in a science lab. The logistics and communications of the online course will determine the success of constructivist inquiry teaching strategies (Asim et al, 2019; Hollenbeck, J. and Assim, S, 2021).

Conclusion

The success of online learning is dependent on peer coaching, dedicated IT staff, and teachers willing to put forth long hours and learning as they go. Teaching is based on personal relationships, trust, and mentoring at all levels. The application of E-Learning/online learning and Multi-Modal teaching has become a permanent and accepted fixture of education. The advantages of availing online learning to remote, distant locations and at student convenience is the new paradigm of education. By implementing Multi-Modal education teaching, Indiana University Southeast can provide a comprehensive, flexible, and innovative learning experience that meets the diverse needs of its students while preparing future science educators to effectively teach in a variety of settings.

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