Connecting Pedagogy with Overlapping Technologies

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The key to a successful distance education course is to evaluate and select the types of overlapping technologies (e.g., interactive whiteboard, on-line course management system, streaming media, and student computers) that fit the instructor's pedagogy, the needs of the learner, and the objectives of the course. This paper will demonstrate how faculty members at Idaho State University (ISU) are connecting synchronous and asynchronous distance education technologies with best practices that utilize personal teaching experiences in the video classroom.

Overlapping technologies provide faculty members with the opportunity to introduce new teaching practices for disseminating instructional technology activities in distance learning. ISU offers 400 hours a week of compressed video lecture that take advantage of various overlapping technologies in distance education. With so much activity, ISU is offering instructional strategies for faculty implementing overlapping technologies through institutional resources and services.

During spring semester 2005, ISU faculty involved in distance education provided feedback, through a survey instrument, about the need to employ a large variety of overlapping technologies to help disseminate course activities. The survey assessed their satisfaction with distance education services, their existing utilization of overlapping technologies, and their goals for using more overlapping technologies in the future. All of the faculty members surveyed currently teach in a video classroom that is connected to at least one other distant site and as many as eight sites simultaneously. All 34 video classrooms in the ISU network are equipped with an instructor computer (Microsoft Office, Internet access, etc.), VCR, DVD, document camera, and interactive whiteboards in some instances.

According to survey responses, faculty who are teaching in video classrooms versus traditional classrooms are doing so because either: 1) administration articulated a need for faculty to reach out to the rural communities of Idaho; or 2) faculty perceived the need to reach out to those students in rural Idaho and video classrooms are a preferred alternative to traveling around the countryside or offering correspondence courses. The perception is – and enrollment numbers at the University support this – that ISU enrollment is bolstered by the utilization of video classrooms.

In determining faculty needs, 45% of the survey respondents are currently using some kind of overlapping technology in conjunction with their video classroom. Even with the overlapping technology resources in place, 84% of the faculty would like instructional technology support with an interactive whiteboard in their televised classrooms and 68% would like support integrating student computers in those classrooms as well. Strategies for intended utilization of both technologies primarily address increasing student-to-student and student-to-faculty interaction throughout the class periods. Of the 55% of respondents who are not utilizing any other technologies than what the classrooms currently provide, 75% would like to be able to integrate overlapping technologies to enhance instruction.

Almost 90% of faculty involved in the survey would like to integrate more overlapping technologies into their classes in an effort to increase interaction and, ultimately, student learning. A reflective guide,

identified as Designing Overlapping Technologies (DOT), was developed to support these growing needs in the video classrooms. The DOT guide provides faculty with a series of reflective questions to help make decisions about the types of technologies to address student needs, course objectives, and instructors' individual pedagogies. This analytical process allows faculty to make strategic choices about the types of distance learning activities and technologies that can be delivered and evaluated in conjunction with resources in the distance learning classrooms.

Lee and Owens (2000) recommend spending adequate time completing proper needs assessment and front-end analysis to prevent problems when designing and developing the course activities that make use of overlapping technologies. The reflective questions in the DOT guide help the instructors to assess their own pedagogies, students' needs, and course content objectives. After instructors read the recommendations and complete their responses to the reflective questions, the design guide allows them to begin organizing courses by selecting instructional technology activities that fit the course objectives and student learning outcomes. As learning outcomes are identified for each objective, a chart guides the selection of activities that correspond to the appropriate distance learning technology.

The DOT helps determine the distance learning technology resources available at the University with listed recommendations and best practices when combining technologies. Examples provide references to the type of technology and the sample activities that connect the distance education facilitation efforts. For example, teaching in a compressed video classroom can create challenges with distributing content to other distance sites. As an administrative task, instructors can distribute content through online course efforts prior to the class meeting time. Faculty can adopt the administrative technology recommendations and modify them as necessary to meet their needs.

The technology selection of the DOT guide defines the steps involved in preparing overlapping technologies for distance learning. When making decisions about technology, instructors should identify the technology tools for each intended learning outcome and consider how the combination of tools will be facilitated. Faculty members compare technology practices with intended learning situations. Based on media-selection factors developed by Gagné, Briggs, and Wager (1992), the following will aid the instructor when selecting technologies that overlap in distance education:

- Physical attributes – technology that enhances learning through visual, verbal, or motion
- Task characteristics – technology that fits the learning outcomes (e.g., intellectual, attitude, cognitive, verbal, motor skill)
- Learner characteristics – technology that supports student learning styles, reading comprehension, and social backgrounds

The DOT methods help instructors to determine the technology selection criteria to fit their pedagogies and the students' instructional needs. The selection of technology must be suited to address the needs of both the students and their instructors. Overlapping technologies should not introduce new challenges that cause any breakdowns in technology, in faculty comfort, or in student learning. The use of overlapping technologies should not duplicate instruction unless the instructor is addressing separate student learning outcomes or student learning styles.

Learners involved in distance education tend to identify with technology delivery methods that do not conflict with working student schedules or do not cause additional travel time. Instructors should recognize the time constraints and flexibility of the technologies utilized in distance learning. The employment of overlapping technologies encourages the use of time management tools that support learners' special needs. Palloff and Pratt (2003) identify time management concerns that instructors should address when supporting students with distance education technologies, including setting goals, setting priorities, budgeting time, avoiding overload, and increasing commitment. Instructors should

identify the time needed to plan each activity and prepare guidelines for the students. Online and other types of distance education require careful planning; course design should be innovative and allow learners to interact with each other and with course materials (Porter, 2004). Based on the time limitations to prepare, develop, and deliver instruction, faculty will develop schedules that enable technology training, designing, developing, facilitation, and evaluation.

Once instructors have identified time constraints, the DOT provides design methods for overlapping technologies. The design methods are examples of how other faculty members make use of different technologies in distance learning. Designing is a process of determining the audience's dependence on the distance learning technologies and the level of use of each technology to foster learning. The level of distance learning required by the class participants provides the instructor with the flexibility to identify when, how, and where the students will engage with the overlapping technologies. The DOT provides design criteria, which faculty members will follow to plan out the course. The criteria are presented in an instructor activity table focusing on data collected in the reflective questions, the selected technology, and the time needed to develop the activities.

Developing course activities depends on end product from various technology delivery system(s) and whether the delivery mode is self-instruction or classroom-based instruction (Piskurich, 2000). The development process encourages instructors to think about how the end product (e.g., course objectives) will be delivered through the technology. For example, as an instructor develops lecture materials for a video classroom to help facilitate the verbal and cogitative outcomes for a specific objective, an online discussion will employ an intellectual outcome for the same objective and encourage collaboration among students. The use of overlapping technologies provides students with synchronous and asynchronous methods to communicate while allowing the instructor to avoid utilizing valuable lecture time to disseminate all three outcomes for a single course objective.

Delivering overlapping technologies encourages the use of a teaching matrix as it relates to the instructor's role as facilitator. As part of aiding students, the instructor should introduce various technology tools to students prior to any graded activities with an explanation of each tool and how it will be utilized in the course. Porter (2004) suggests using a check-off list when facilitating online technologies to determine the instructor's responsibilities. The DOT offers a series of check-off lists for faculty administrating overlapping technologies in the video classroom to help identify important instructional responsibilities (e.g., locate electronic resources, prepare discussion board, and post lecture handouts).

The evaluation instruments will be created as a process of answering a series of reflective questions and developing technology activities in the DOT exercises. The formative evaluation process makes use of the answers to the reflective questions. While developing the activities, faculty can review the answers to help determine the accuracy and applicability of the activities. As part of the summative process of evaluation, the DOT guide recommends and provides a series of instruments that focus on measuring the effectiveness of the technology, the instructor, and the student. The instruments focus on how to improve the course as related to the use of overlapping technologies utilized in the classroom.

The DOT guide provides a needed tool for ISU faculty integrating overlapping technologies. It is about knowing what types of technologies work best with learner needs, instructor pedagogies, and instructional objectives. Working with more than one technology and finding the best way to combine the use of technologies determine the success of the instruction. The DOT provides guidelines and suggestions to help instructors become more acquainted with instructional technologies and helps identify new ways to teach. Utilizing overlapping technologies is not about encouraging the use of technology, but about encouraging better teaching methods for those instructors involved in distance learning activities in a video classroom.

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Biographical Sketches

Mr. Randy Lee Stamm, Manager/Senior Instructional Technologist, provides leadership and direction for the Instructional Technology Resource Center at Idaho State University (ISU). He supports faculty with multimedia tools and new technologies in the traditional classroom and World Wide Web. Since 1997, he has supported faculty with the instructional design process of web-based instruction. He received a M.Ed. in Instructional Technology and a B.A. in Mass Communication. He has designed and developed several instructional design instruments including the WOWDOC, ACT, GAP and DOT design guides for ISU faculty creating and facilitating distance education curriculum.

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