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For many teachers in higher education, the current context of course delivery mode decisions appears to be that "no input is requested or taken," and no research could be found that has addressed the question of optimizing delivery mode decisions. It appears that decisions about whether to teach a course as face-to-face (F2F), hybrid, or online are often externally imposed onto teachers or are driven by non-pedagogical considerations. As Jenkins (2013) notes, the primary parties that drive the online education "locomotive" are not faculty or students, but rather administrators and politicians. Whether the latter parties are more concerned with financial considerations than educational quality is a topic for a different paper (see also Edmundson, 2012). If and when teachers find that their input is requested or taken with respect to how a course should be delivered, they will need a model for how to make and pedagogically support those delivery mode decisions.

In the past, course delivery mode decisions were simple. Other than F2F delivery, few other options existed. Today there are multiple delivery mode alternatives but few recommendations for choosing among them. As the course development process evolves, delivery mode decisions must be considered and should assume a prominent part of that process.

Adopting a new delivery mode without due consideration regarding the relevant learning outcomes is not good teaching practice. However, some faculty function under the misconception that one delivery mode is just as good as another. As a result, the technologies and tools can overshadow the pedagogy, and faculty may end up with mismatches between mode of delivery and learning outcomes. For example, deciding to offer a course online because the F2F sections are under-enrolled is not a decision based on pedagogical considerations. In addition, if a desired outcome involves learning how to work effectively in a team, a teacher should not use a grouping tool in a learning management system (LMS) that severely restricts the sharing of information or active teamwork. Conversely, teachers may fail to consider alternative delivery mode options that would further enhance student learning and teaching effectiveness. For example, teachers might use the gradebook feature of an LMS but not incorporate tools (such as rubrics or self-assessments) that would benefit specific learning outcomes. Teachers and course designers should, therefore, strive for identifying the optimal alignment of the elements in the curriculum with the available delivery mode options.

Prior to describing the Course Delivery Decision Model (CDDM) in detail: (1) the distinction between course design and course delivery mode is briefly discussed; (2) the primary audiences of the model are described; (3) the existing literature on course- and learning-design practices is briefly reviewed; (4) the nature and importance of learning outcomes for effective course design and delivery is highlighted; and (5) the major delivery methods available to teachers are briefly defined.

Course Design and Course Delivery Mode

Making sound pedagogical decisions requires recognition and acknowledgment of the interdependence between course design and course delivery. Course design is generally considered to refer to the structure of the course (i.e., what content is covered, what activities are included, what assessments are used) in order to achieve a set of learning outcomes (e.g., Fink, 2003; Gagné, Wager, Golas, & Keller, 2005; Goodyear, 2001; Gustafson & Branch, 2002). Course delivery refers to decisions about how to present the content, activities, and assessments that are designed into the course (e.g., Owen, Aworuwa, Fragoso-Diaz, & Ntoko, 2004; Porto & Aje, 2004). The design process may include a consideration of delivery options, but most approaches are not systematic and strategic in this consideration. The CDDM makes explicit the consideration of delivery mode.

Because it is typically difficult or impossible to change how a course is delivered once it is being taught, the CDDM is best used in the development stage. In order to make the best use of a delivery mode decision model, a course design needs to be at least partially blueprinted or completed. In particular, a teacher or course designer should have clearly articulated learning outcomes as well as a collection of possible content, activities, and assessments that are designed to meet those outcomes. In this paper, the operating assumption is that systematic and strategic attention to the delivery mode decision will complement course design efforts.

The CDDM Targeted Audiences

personnel (e.g., course design specialists, learning technologists, faculty mentors) in a position to advise and guide faculty through the decision-making process.

Course and Learning Design Practices

There is an abundance of resources that address curricular and instructional issues pertinent to course and learning design. Best teaching practices emphasize the importance of planning in all areas of course design and delivery (e.g., Fink, 2003; Gagné, 1985; Koper, 2006; Lockyer, Bennett, Agostinho, & Harper, 2009; MacLean & Scott, 2007), and implementing the use of a model provides a user with a framework or a systematic foundation from which to build a purposeful and useful product.

The major course- and learning-design models emphasize how specific content, activities, and assessments might be developed and potentially delivered. However, these models typically do not bring delivery mode decisions to the forefront, addressing this issue after the course has been designed and entered into the blueprinting stage. It is frequently assumed that a well-designed course can be delivered in many ways and that the overall design is independent of how it can or should be delivered. The delivery mode decision-making model was developed so that it can be utilized with any course- or learning-design model as a systematic consideration of how delivery mode decisions can improve one's course.

The Primacy of Learning Outcomes

Learning objectives are defined as targeted, competency-based statements conveying expected learning outcomes (Mandernach, 2003; MIT Teaching and Learning Laboratory, n.d.). For simplicity and consistency, outcomes will be used when describing the CDDM. Learning outcomes are not always front and center in the delivery mode decision-making process, what others call an "optimization problem" (DeSantis, 2012). Fink (2003) clearly links learning outcomes to course activities and assessment as part of a well-integrated course, but he devotes less attention to the critical role of outcomes in deciding how courses should be delivered.

There are very good resources intended to help teachers and course designers with the process of articulating learning outcomes. These guides help faculty to determine what constitutes a well-written learning outcome, to know that their outcomes are clearly or accurately written, and to use general models, templates, and tips on how to write them effectively (e.g., Clark, 2010; Education Oasis, 2004; Fink, 2005; Mandernach, 2003; MIT Teaching and Learning Laboratory, n.d.). For example, a poorly-written learning outcome for an introductory health education course would be: "By the end of this course, students should increase their knowledge of the course content." The same learning outcome written more clearly would be: "By the end of this course, students will be able to identify and define foundational medical terminology." Well-written learning outcomes include active and measurable verbs and are realistic, specific, clearly stated, and student-centered. Although there are many useful learning outcome resources, an additional question needs to be addressed: How should faculty decide what delivery mode is best aligned with their well-written outcomes in order to maximize student learning?

There are several reasons why learning outcomes should be given primary consideration when making course delivery mode decisions. First, as already established, the content, activities, and assessments of a well-designed course should be driven by the learning outcomes (Bain 2004; Fink, 2003, 2005; Wiggins & McTighe, 2005). Second, when one's delivery mode decisions are made independently of the course learning outcomes, the teacher runs the risk of sub-optimal implementation of those outcomes in the final course. Finally, while accreditation agencies note that course learning outcomes are critical in achieving optimal student learning (Beno, 2004; Council for Higher Education Accreditation, 2010; Ewell, 2001), there is little attention devoted to the fact that learning outcomes are critical to making

Major Course Delivery Modes

A logical step in the course delivery mode decision-making process is to have a clear idea of the available options. This increases the chances that the most pedagogically appropriate strategies are implemented in attaining the desired learning outcome. Although there are other variations, the model incorporates the three most popular and common modes of course delivery:

- *The physical classroom:* F2F; a traditional approach; web-based storage of course materials may be included but little or no web-based learning is integrated; usually involves no reduction in the traditional "seat-time" ascribed to courses;
- *A blended or hybrid approach:* A combination of on-ground, traditional teaching/learning modes with varying amounts of online or networked learning activities; typically involves a decrease in the traditional classroom-based "seat-time" for the course; a variant includes "hyflex" or hybrid courses with flexible participation (e.g., Beatty, 2010);
- *Web-based courses:*

- *Level I delivery mode decision-making.* The first types of delivery mode decisions that need to be made are those connected to the implementation and evaluation of the domains for each individual learning outcome. Within each of these domains, there are multiple modes and

learning design process. The model forces course delivery mode decisions to be driven by course learning outcomes. In addition, it encourages teachers and developers to be open to new modes, maximize learning outcomes, and increase their awareness of different delivery options. This model helps educators to be more cognizant of what and how they are teaching and has the potential to refresh their attitudes about content.

There are multiple questions associated with the use of this model. For example, compared to traditional decision-making about course delivery, will making systematic and strategic course delivery mode decisions have a positive impact on student learning, student evaluations, and faculty satisfaction? Is a particular mode of delivery most frequently the outcome of using the model? Does the model prove useful as an evaluative tool to determine the wisdom or validity of delivery mode decisions that have been externally imposed or already implemented? Can it be helpful to designers who are planning a redesign of an existing course? If the model proves to be popular, all of these questions can be

Fink, L. D. (2003). *Creating significant learning experiences: An integrated approach to designing college courses*. San Francisco, CA: Jossey-Bass.

Fink, L. D. (2005). *A self-directed guide to designing courses for significant learning.* Norman, OK: Author. Retrieved from http://www.deefinkandassociates.com/GuidetoCourseDesignAug05.pdf

Gagné, R. M. (1985). *The conditions of learning* (4th ed.). New York, NY: Holt, Rinehart, and Winston.

Gagné, R. M., Wager, W. W., Golas, K. C., & Keller, J. M. (2005). *,2 e Ypur WnL.002 Tc 0.002 T 11.771 0 n8(2(l5(gn)-12*